15" TFT LCD Colour Monitor

HUDSON II

Service
Service
Service

150B3M/B3Q/B3B/B3E/B3T/B3V/B3Y
150S3F/S3H (CPT LG panel)

EPA POLLUTION PREVENTER

Smart Interface/PnP/Sliding Height Adjustment
High Bright Picture/Auto Picture Adjustment/Wide Viewing Angle

Service Manual

Horizontal frequencies
30 - 61 kHz

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ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

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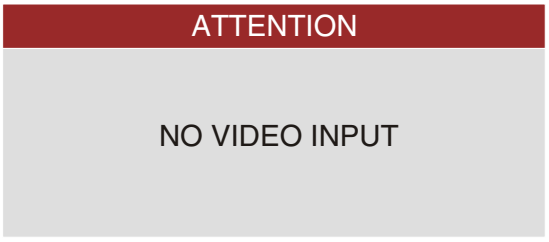
飛利浦 PHILIPS PHILIPS

OSD Attention signals

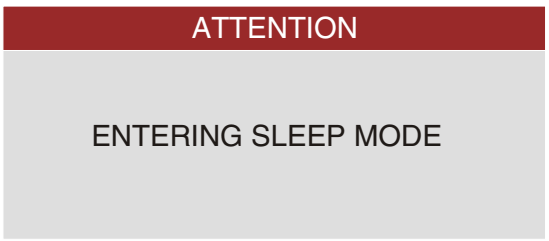
The monitor will detect various display situation automatically. When the monitor detects the problems, the screen will show the different warning signals to remind you what is happen to your monitor.

NO VIDEO INPUT
This screen appears if there is no video signal input. Please check that the signal cable is properly connected to the video card of PC and make sure PC is on.



CANNOT DISPLAY THIS VIDEO MODE..
This screen warns when the input frequency from the computer is not a standard video mode or out of the monitor's scanning range. Please change the display mode of the operating software in the computer(i.e. Windows) to 1024 x 768@ 60Hz for best display results.

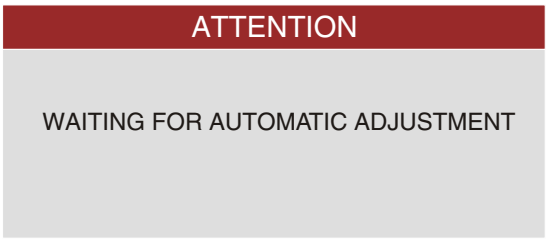
ENTERING SLEEP MODE
This screen appears when the monitor is about to enter the sleep mode. Please press any key on the keyboard or click the mouse to wake up the monitor and computer.



USE 1024 X 768 FOR BEST RESULT
This message appears at the top of the OSD window when the video mode input is not the recommended 1024x768. Other modes may result in some picture distortion. Please adjust the video mode to 1024x768 at 60Hz for best display quality.

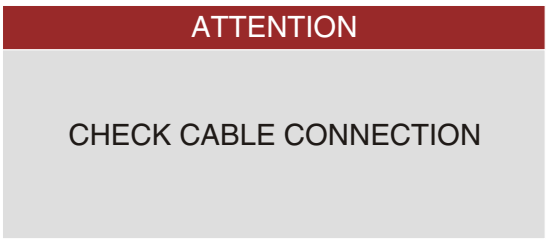
USE 1024x768 FOR BEST RESULT

WAIT FOR AUTOMATIC ADJUSTMENT
This screen appears when you touch the AUTO button. It will disappear when the monitor is properly adjusted.



SECOND VIDEO IS NOT AVAILABLE
When you select video input between Analog or Digital signal via INPUT SELECTION function of OSD menu, if the one you are selecting is not available, following message will appear on the screen then switching back to the previous setting automatically.

CHECK CABLE CONNECTION
This message appears when a signal cable is disconnected while computer is working.



Trouble Shooting

TROUBLE SHOOTING

This page presents problems that can be corrected by the user. If the problem still exists after these possible solutions, a further action has to be take by authorized technicians.

No Picture
(Power LED not lit)

- Make sure the Power cable is plugged to the wall and back of the monitor.
- Make sure the DC power cord has been attached to the DC jack.
- First, power button in front of the monitor should be in the OFF position, then press it to ON position again.

No Picture
(Power LED is Amber or Yellow in color)

- Make sure the computer is turned on.
- Make sure the signal cable is properly connected to your computer.
- Check to see if the monitor cable has bent pins.
- The Energy Saving Feature may be activated.

Screen says

- Make sure the monitor cable is properly connected to your computer.
- Check to see if the monitor cable has bent pins.
- Make sure the computer is turned on.

AUTO button not working properly

- The Auto Function is designed for use on standard Macintosh or IBM-compatible PC running Microsoft Windows.
- It may not work properly if using non-standard PCs or video card.

Imaging Problems

Display position is incorrect

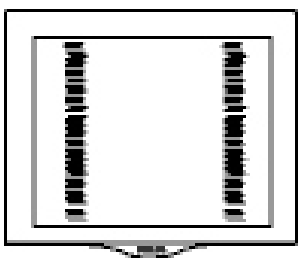
- Push the AUTO button.
- Adjust the image position using the Horizontal Position & / or Vertical Position in the Second Window.

Image vibrates on the screen

- Check that the signal cable is properly connected to the graphics board or PC.

Vertical flicker appears

- Push the AUTO button.
- Eliminate the vertical bars using the Clock Adjustment in the FIRST Window.



Horizontal flicker appears

- Push the Auto button.
- Eliminate the horizontal bars using the Phase Adjustment in the First Window.

The screen is too bright or too dark

- Adjust the contrast and brightness using the First Window.
(The backlight of the LCD monitor has a fixed life span. When the screen becomes dark or begins to flicker, please contact your dealer.)

An after-image appears

- If an image remains in the screen for an extended period of time, it may be imprinted in the screen and leave an after-image. This usually disappears after a few hours.

An after-image remains after the power has been turned off

- This is characteristic of liquid crystal and is not caused by a malfunction or deterioration of the liquid crystal. The after-image will disappear after a set amount of time.

Green, red, blue, dark and white dots remain on the screen

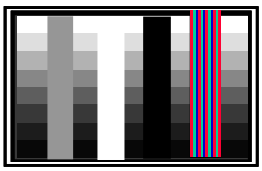
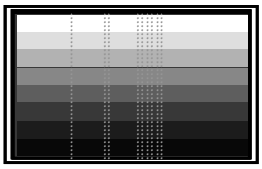
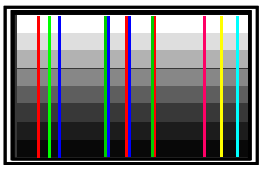
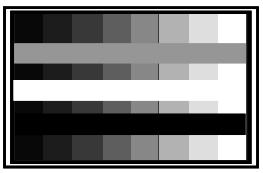
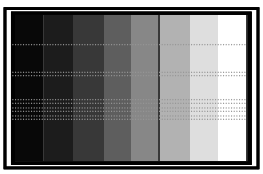
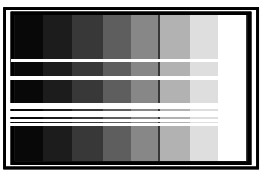
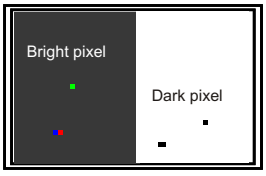
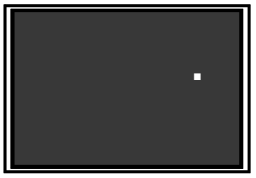
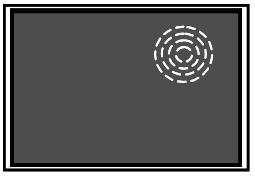
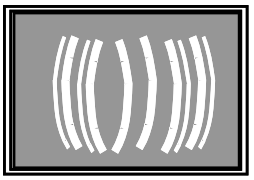
- The remaining dots are normal characterics tic of the liquid crystal used in today's technology.

Failure Mode of LCD panel

Go to cover page

Quick reference for failure mode of LCD panel

This page presents problems that could be made by LCD panel. It is not necessary to repair circuit board. Simply follow the Mechanical instruction on this manual to eliminate failure by replace LCD panel or backlight tubes.

Failure description	Phenomenon
Vertical block defect	
Vertical dim lines	
Vertical lines defect (Always bright or dark)	
Horizontal block defect	
Horizontal dim lines	
Horizontal lines defect (Always bright or dark)	
Has bright or dark pixel	
Polarizer has bubbles	
Polarizer has bubbles	
Foreign material inside polarizer. It shows linear or dot shape.	
Concentric circle formed	
Bottom back light of LCD is brighter than normal	
Backlight un-uniformity	
Backlight has foreign material. Black or white color, linear or circular type	

Flat Panel Adjust (FP Adjust)

Fpadjust program

The Flat Panel Adjust (FPadjust) software helps you to find the best setting for your Philips LCD monitor. It allows you to adjust the image performance of LCD monitor, such as RESOLUTION, AUTO ADJUSTMENT, POSITION, CONTRAST, VIDEO CLOCK and VIDEO PHASE.

Note: Video clock and phase functions are only available for analog video signals.

Install and Run FPadjust

In "MS Windows 95/98" environment : For example
1. Insert CD-DFU(3138 117 03111) to your CD-ROM driver.
2. Run "F:\PC\FPADJUST\FP_SETUP01.EXE" as Fig. 1.

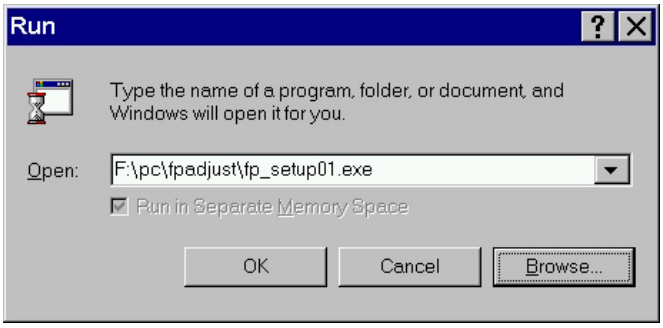
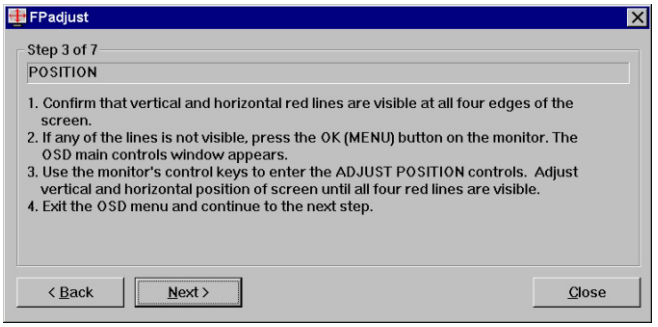


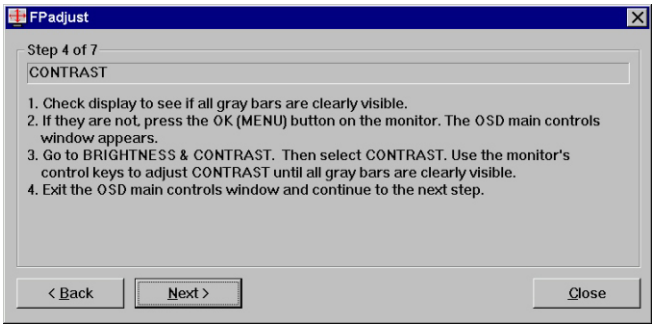
Fig. 1

3. Then follow the instructions to install the FPadjust program.

When finish, double click FPadjust icon " " , then the description (can be moved by mouse) and background pattern come on the screen for image adjustment.

FPadjust program is working as a pattern generator to provide the pattern display on the screen for the adjustment of CONTRAST, CLOCK, PHASE ...etc. Please follow the steps below to adjust your PHILIPS Flat Panel Monitor for best display quality.


FPadjust
Step 3 of 7
POSITION
1. Confirm that vertical and horizontal red lines are visible at all four edges of the screen.
2. If any of the lines is not visible, press the OK (MENU) button on the monitor. The OSD main controls window appears.
3. Use the monitor's control keys to enter the ADJUST POSITION controls. Adjust vertical and horizontal position of screen until all four red lines are visible.
4. Exit the OSD menu and continue to the next step.
< Back
Next >
Close


FPadjust
Step 4 of 7
CONTRAST
1. Check display to see if all gray bars are clearly visible.
2. If they are not, press the OK (MENU) button on the monitor. The OSD main controls window appears.
3. Go to BRIGHTNESS & CONTRAST. Then select CONTRAST. Use the monitor's control keys to adjust CONTRAST until all gray bars are clearly visible.
4. Exit the OSD main controls window and continue to the next step.
< Back
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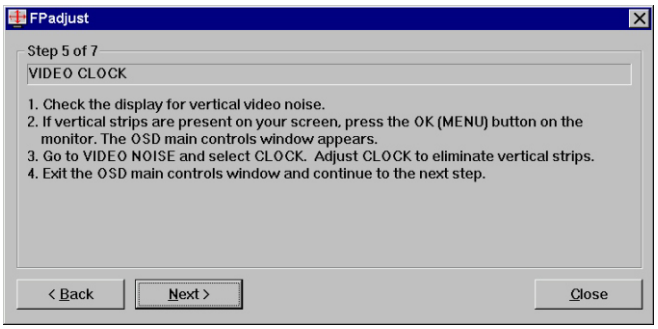
Close


FPadjust
Step 5 of 7
VIDEO CLOCK
1. Check the display for vertical video noise.
2. If vertical strips are present on your screen, press the OK (MENU) button on the monitor. The OSD main controls window appears.
3. Go to VIDEO NOISE and select CLOCK. Adjust CLOCK to eliminate vertical strips.
4. Exit the OSD main controls window and continue to the next step.
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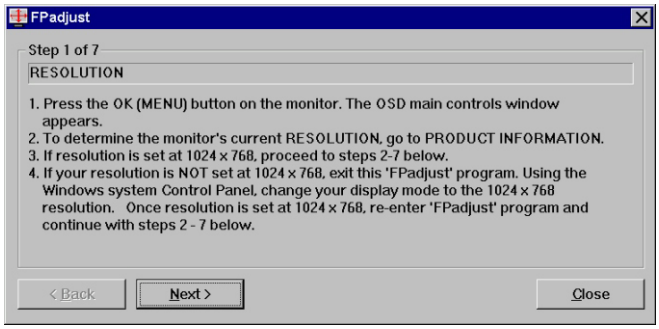
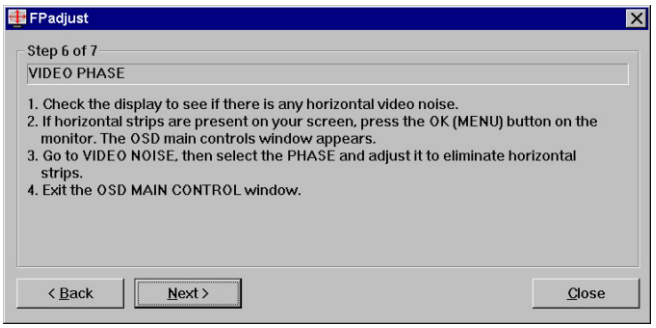
Close


FPadjust
Step 1 of 7
RESOLUTION
1. Press the OK (MENU) button on the monitor. The OSD main controls window appears.
2. To determine the monitor's current RESOLUTION, go to PRODUCT INFORMATION.
3. If resolution is set at 1024 x 768, proceed to steps 2-7 below.
4. If your resolution is NOT set at 1024 x 768, exit this 'FPadjust' program. Using the Windows system Control Panel, change your display mode to the 1024 x 768 resolution. Once resolution is set at 1024 x 768, re-enter 'FPadjust' program and continue with steps 2 - 7 below.
< Back
Next >
Close


FPadjust
Step 6 of 7
VIDEO PHASE
1. Check the display to see if there is any horizontal video noise.
2. If horizontal strips are present on your screen, press the OK (MENU) button on the monitor. The OSD main controls window appears.
3. Go to VIDEO NOISE, then select the PHASE and adjust it to eliminate horizontal strips.
4. Exit the OSD MAIN CONTROL window.
< Back
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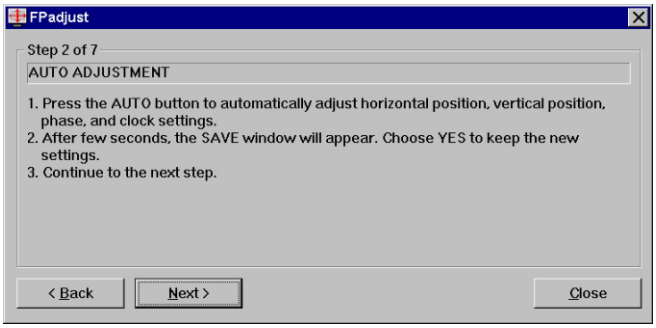
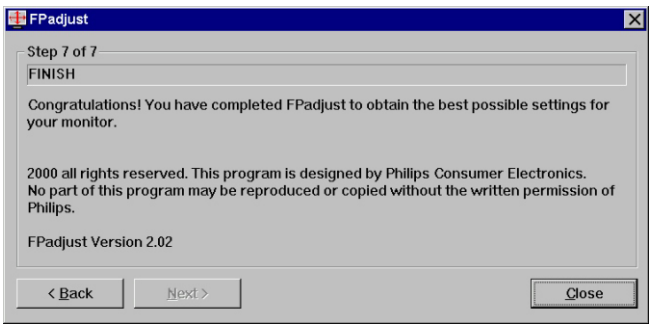
Close


FPadjust
Step 2 of 7
AUTO ADJUSTMENT
1. Press the AUTO button to automatically adjust horizontal position, vertical position, phase, and clock settings.
2. After few seconds, the SAVE window will appear. Choose YES to keep the new settings.
3. Continue to the next step.
< Back
Next >
Close


FPadjust
Step 7 of 7
FINISH
Congratulations! You have completed FPadjust to obtain the best possible settings for your monitor.
2000 all rights reserved. This program is designed by Philips Consumer Electronics. No part of this program may be reproduced or copied without the written permission of Philips.
FPadjust Version 2.02
< Back
Next >
Close

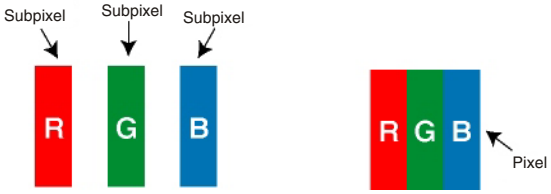
Definition of Pixel Defects

0. General

This section explains the different types of pixel defects and defines acceptable defect levels of each type. In order to qualify for repair or replacement under warranty, the number of pixel defects on a TFT LCD panel must exceed these acceptable levels.

1. Definition of Pixels and Subpixels

A pixel, or picture element, is composed of three subpixels in the primary colors of red, green and blue. Many pixels together from an image. When all subpixels of a pixel are lit, the three colored subpixels together appear as a single white pixel. When all are dark, the three colored subpixels together appear as a single black pixel. Other combinations of lit and dark subpixels appear as single pixels of other colors.

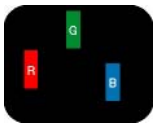


2. Types of Pixel Defects

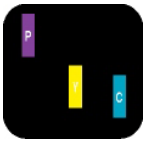
Pixel and subpixel defects appear on the screen in different ways.

Bright dot defects
Bright dot defects appear as pixels or subpixels that are always lit or "On". These are the types of bright dot defects:.

One lit red, green or blue subpixel



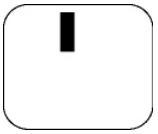
Two adjacent lit subpixels:
- Red + Blue = Purple
- Red + Green = Yellow
- Green + Blue = Cyan (Light Blue)



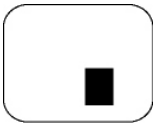
Three adjacent lit subpixels
(One white pixel)

Black dot defects
Black dot defects appear as pixels or subpixels that are always dark or "Off". These are the types of black dot defects:

One dark subpixel



Two or three adjacent dark subpixels



3. Pixel Defect Tolerances

In order to qualify for repair or replacement due to pixel defects during the warranty period, a TFT LCD panel in a PHILIPS flat panel monitor must have pixel or subpixel defects exceeding the tolerances listed in the following tables.

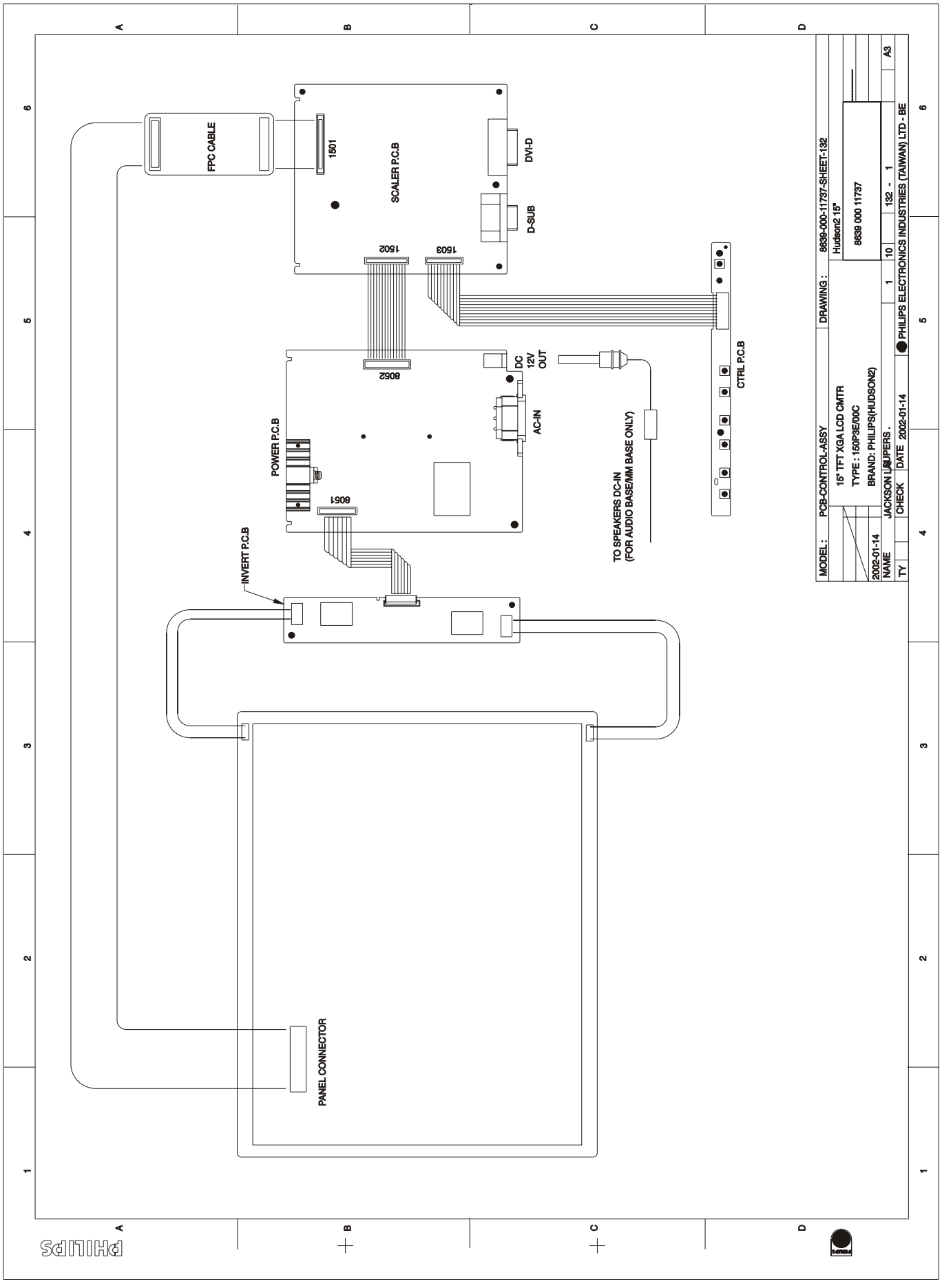
BRIGHT DOT DEFECTS	ACCEPTABLE LEVEL		
MODEL	**150P3**	**150B3**	**150S3**
1 lit subpixel	None	None	8 or fewer
2 adjacent lit subpixels	None	None	3 or fewer
3 adjacent lit subpixels (one white pixel)	None	None	1 or fewer
Distance between two bright dot defects*	None	None	15 mm or more
Bright dot defects within 20 mm circle	None	None	3 or fewer
Total bright dot defects of all types	None	None	8 or fewer

BLACK DOT DEFECTS	ACCEPTABLE LEVEL		
MODEL	**150P3**	**150B3**	**150S3**
1 dark subpixel	4 or fewer	4 or fewer	8 or fewer
2 adjacent dark subpixels	1 or fewer	1 or fewer	3 or fewer
3 adjacent dark subpixels	None	None	1 or fewer
Distance between two black dot defects*	15 mm or more	15 mm or more	15 mm or more
Black dot defects within 20 mm circle*	3 or fewer	3 or fewer	3 or fewer
Total black dot defects of all types	4 or fewer	4 or fewer	8 or fewer

TOTAL DOT DEFECTS	ACCEPTABLE LEVEL		
MODEL	**150P3**	**150B3**	**150S3**
Total bright or black dot defects of all types	4 or fewer	4 or fewer	10 or fewer

Note: 1 or 2 adjacent subpixel defects = 1 dot defect

Wiring Diagram



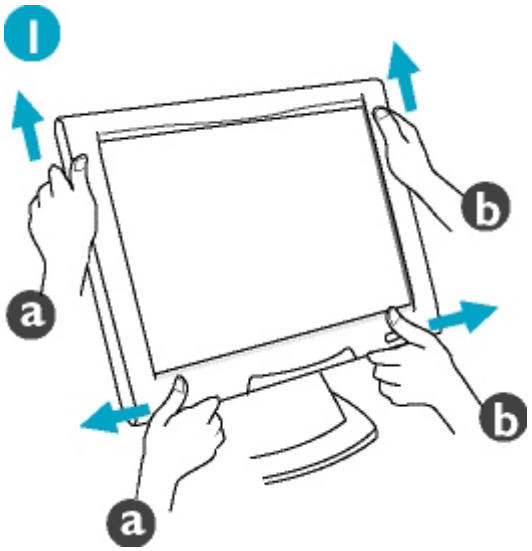
Mechanical instructions

General

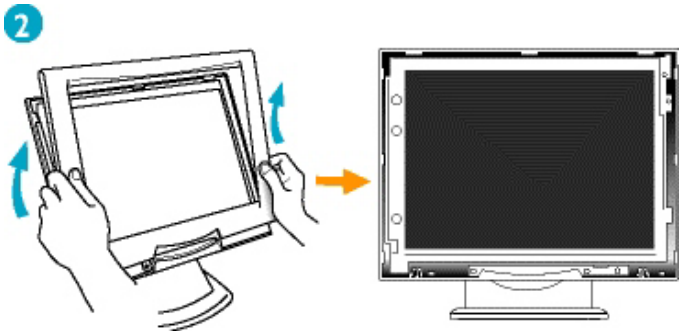
To be able to perform measurements and repairs on the circuit boards, Spread a soft mat underneath to avoid damaging the LCD surface.

1) To remove the bezel,

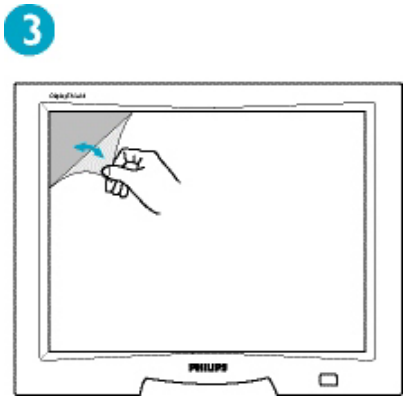
(a) Push the button located underneath the monitor and slide the bezel up at the same time.
(b) Repeat step (a) for the other side.



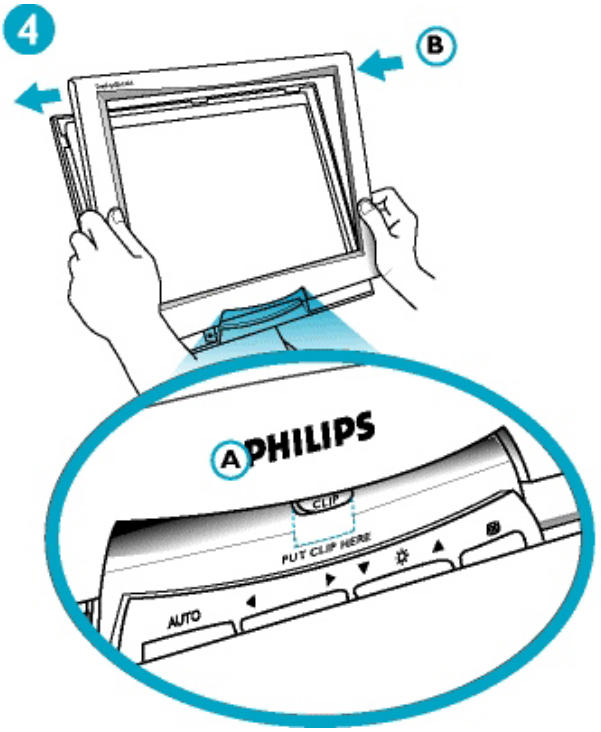
2) Pull forward to remove the front bezel from the monitor.



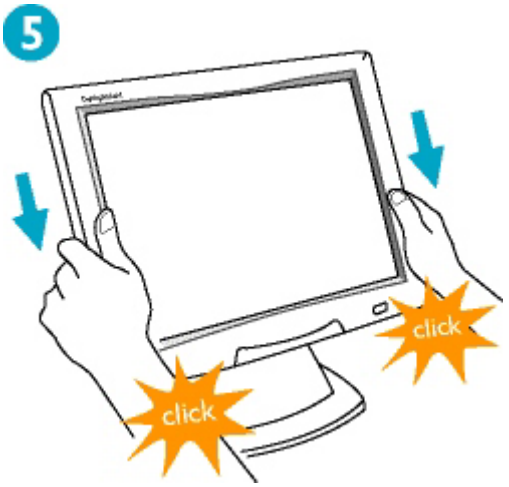
3) **Peel off the film from both sides of the protective cover.**



4) Mount the protective cover by first aligning its clip onto the guide line on above of the control panel (A), then press on (B).



5) Push down the protective cover to mount it securely



Mechnical instructions

1. Front bezel removal
Hold lock bezel-right and lock bezel-left, then push the front Bezel from down to up see, Fig. 1

Fig. 1
Front bezel

2. Control panel removal, Fig.2
Step1. Remove the 7 pins connectors(1712)
Step2. Release two screws

Fig.2 connector(1712)

3. Back cover removal
Step1. Release four screws see, Fig.3

Fig. 3

Step2. Pull out LG-frame panel then rotate LG-frame to find out Scaler board, power board and interver board, Fig. 4

Fig. 4

Step 3 : Removal Scaler/ power board
Remove 4 screws, Fig. 5

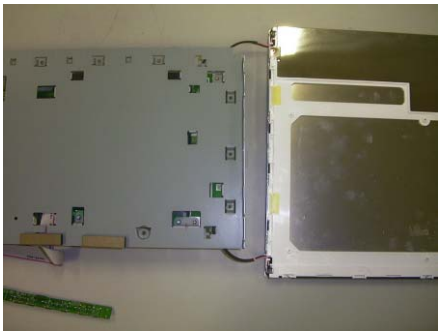


Fig. 5

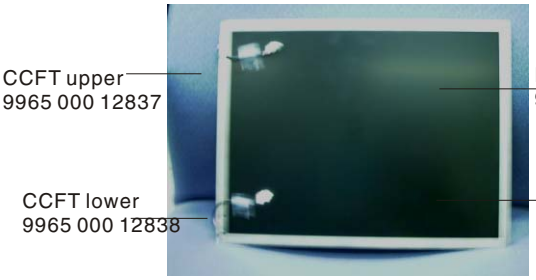


Fig. 6

Mechanical instructions

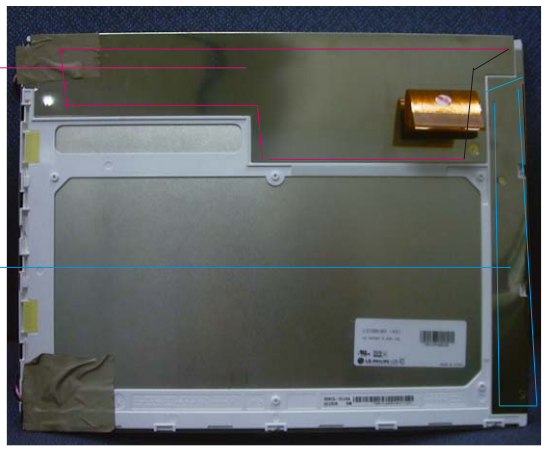


Fig. 7

Fig. 8

Fig. 9

Electrical instructions

0. General

When carry-out the electrical settings in many cases a video signal must be applied to the monitor. A computer with :

- ATI VGA 1024 V6-1.04/PH BETA4 interface card
- PGA 1024 (4822 212 30916), Mach 8.
- PGA 1280 (4822 212 30917), Mach 32.
- ATI GPT-1600 (4822 397 10065), Mach 64 (up to 107kHz)

are used as the video signal source. The signal patterns are selected from the "service test software" package, see user guide 4822 727
19896 (ATI1024), or 4822 727 20273 (PGA1280), or
4822 727 21046 (GPT-1600).

0.1 **With normal VGA card:**
If not using the ATI card during repair or alignment, The service engineer also can use this service test software adapting with normal standard VGA adaptor and using standard VGA mode 640 x 480, 31.5 kHz/60 Hz (only) as signal source.

0.2 **AC/DC Measurement:**
The measurements for AC waveform and DC figure is based on 1024 x 768 48kHz/60 Hz resolution mode with test pattern "32 gray scale".
Power input: 110V AC

Factory preset video resolution

Dot rate (MHz)	H.freq (KHz)	Mode	Resolution	V.freq (Hz)
25.175	31.469	IBM VGA 10h	640 * 350	70.087
28.322	31.469	IBM VGA 3h	720 * 400	70.087
25.175	31.469	IBM VGA 12h	640 * 480	59.940
30.240	35.000	MACINTOSH	640 * 480	66.667
31.500	37.861	VESA	640 * 480	72.809
31.500	37.500	VESA	640 * 480	75.000
36.000	35.156	VESA	800 * 600	56.250
40.000	37.879	VESA	800 * 600	60.317
50.000	48.077	VESA	800 * 600	72.188
49.500	46.875	VESA	800 * 600	75.000
57.300	49.700	MACINTOSH	832 * 624	75.000
65.000	48.363	VESA	1024 * 768	60.004
75.000	56.476	VESA	1024 * 768	70.069
78.750	60.023	VESA	1024 * 768	75.029

1.General points

1.1 During the test and measuring, supply a distortion free AC mains voltage to the apparatus via an isolated transformer with low internal resistance.

1.2 All measurements mentioned hereafter are carried out at a normal mains voltage (90 - 132 VAC for USA version, 195 -264 VAC for EUROPEAN version, or 90 - 264 VAC for the model with full range power supply, unless otherwise stated.)

1.3 All voltages are to be measurement or applied with respect to ground, unless otherwise stated. Note: don't use heat-sink as ground.

1.4 The test has to be done on a complete set including LCD panel in a room with temperature of 25 +/- 5 degree C.

1.5 All values mentioned in these test instruction are only applicable of a well aligned apparatus, with correct signal.

1.6 The letters symbols (B) and (S) placed behind the test instruction denotes
(B): carried out 100% inspection at assembly line
(S): carried out test by sampling

1.7 The white balance (color temperature), has to be tested in subdued lighted room.

1.8 Repetitive power on/off cycle are allowed except it should be avoided within 6 sec.

2. Input signal

2.1 Signal type
Video : 0.7 Vp-p linear, positive polarity
Sync. : TTL level, separate, positive or negative polarity
Signal source: pattern generator format as attachment.
(table 1 to 14) Reference generator: CHROMA 2200 or 2250

2.2 Input signal mode
Pre-set 14 modes

3. AC Adaptor

3.1 Setup the AC I/P at 90VAC, and Output DC loading at 3.8 Amp, The DC output voltage is 12 0.5 V DC

3.2 Adjustment is nothing to do

4. Display Adjustment

4.1 Input signals check
In factory mode, use 64 gray level and set the R,G,B sub gain to 100%.

4.2 Display quality test
Use timing mode as described in 2.2,2.3,2.4, and use the POPO (pixel on pixel off) pattern to adjust the clock until no stripe and adjust the phase until clear picture. Check all pre-setting 14 modes.

4.3 Check of WHITE-D (B)
Apply a 48kHz/60Hz signal with white pattern, set brightness control at 100%, and contrast control at 50%. Adjust the R, G, B sub_gain, for the screen center, the 1931 CIE chromaticity (X, Y) co-ordinates shall be;

	9300 K	6500 K
x (center)	0.281 0.005	0.312 0.005
y (center)	0.311 0.005	0.338 0.005

Use Minolta CA-110 for color coordinates and luminance check.
Luminance; 250 Nits (LG panel) in the center of the screen.

4.4 Check the digital interface
Set the delay time to be 6 nsec.
Check the 64 gray level color poor & noise condition.

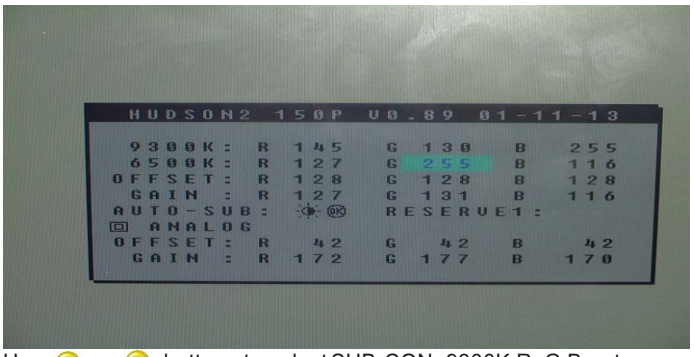
Factory Adjustment

Go to cover page

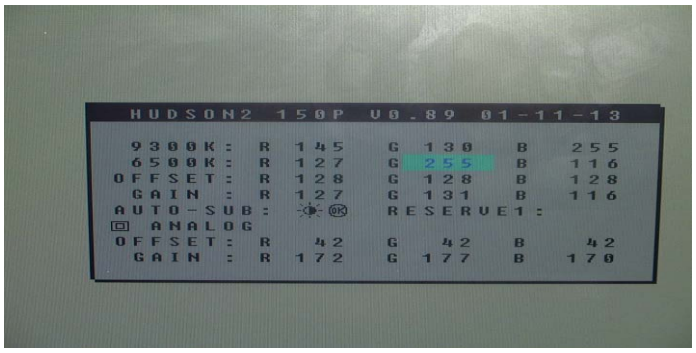
Factory Mode Adjustment

Entering Factory Adjustment Menu
Push (OK) & (AUTO) buttons then power on the monitor, release them after picture display normally. Press (OK) button to bring up OSD menu of factory mode as shown below.

Use (▼) button to select factory adjustment indication (for example: , HUDSON 150P V1.56D 01-03-09which is the entrance of the factory adjustment menu, press (OK) button to access it. The window shows as below.



Use (▲) or (▼) buttons to select SUB-CON, 9300K R G B,..etc.
Use (◀) or (▶) buttons to decrease/increase the value of each item
AUTO : adjust Sub-brightness & Sub-contrast automatically.



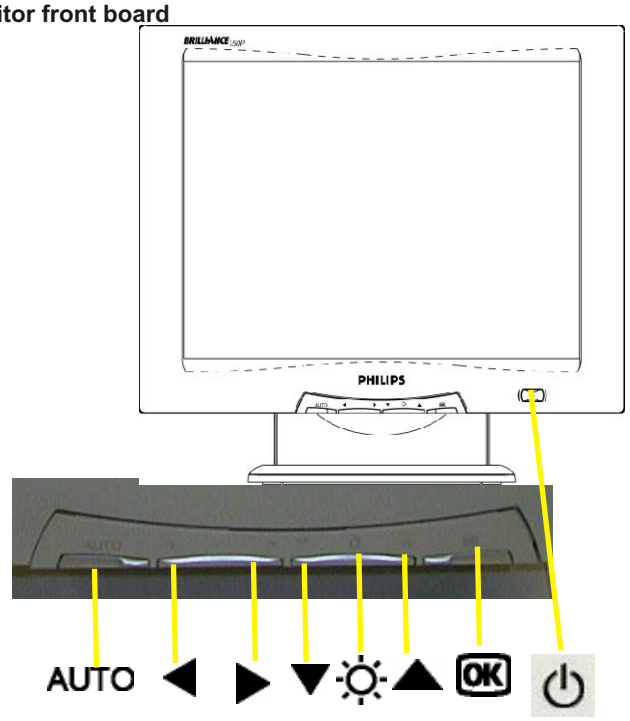
◑ Contrast adjustment (Sub-Contrast). Use this menu item to adjust the contrast gain of pre-amp ranges from 0 to 255.

9300K R G B
6500K R G B
Color temperature gain adjustment. Use these menu items to adjust the RGB gains of pre-amp for different color temperatures, ranges from 0 to 255.

OFFSET R G B
Sub-Brightness adjustment. Use this menu item to adjust the brightness level (DC-level) of pre-amp range from 0 to 255.

(PS: The Offset R G B function can be used on reduce or eliminate snowy noise on the background when the resolution of video signal is 1024 X 768 vertical 60Hz. Slightly increase or decrease the value until snowy noise completely disappear.)

Monitor front board



Safety Test Requirements

All units that are returned for service or repair must pass the original manufactures safety tests. Safety testing requires both *Hipot* and *Ground Continuity* testing.

HI-POT TEST INSTRUCTION

1. Application requirements

1.1 All mains operated products must pass the Hi-Pot test as described in this instruction.

1.2 This test must be performed again after the covers have been refitted following the repair, inspection or modification of the product.

2. Test method

2.1 Connecting conditions

2.1.1 The test specified must be applied between the parallel-blade plug of the mainscord and all accessible metal parts of the product.

2.1.2 Before carrying out the test, reliable conductive connections must be ensured and thereafter be maintained throughout the test period.

2.1.3 The mains switch(es) must be in the "ON" position.

2.2 Test Requirements

All products should be HiPot and Ground Continuity tested as follows:

Condition	HiPot Test for products where the mains input range is Full range(or 220V AC)	HiPot Test for products where the mains input is 110V AC(USA type)	Ground Continuity Test requirement
Test voltage	2820VDC (2000VAC)	1700VDC (1200VAC)	Test current: 25A,AC Test time: 3 seconds(min.) Resistance required: <=0.09+R ohm, R is the resistance of the mains cord.
Test time (min.)	3 seconds	1 second	
Trip current (Tester)	set at 100 uA for Max. limitation; set at 0.1 uA for Min. limitation	5 mA	
Ramp time (Tester)	set at 2 seconds		

2.2.1 The test with AC voltage is only for production purpose, **Service center shall use DC voltage.**

2.2.2 The minimum test duration for Quality Control Inspector must be 1 minute. No breakdown during the test.

2.2.3 The test voltage must be maintained within the specified voltage + 5%.

2.2.4 The grounding blade or pin of mains plug must be conducted with accessible metal parts.

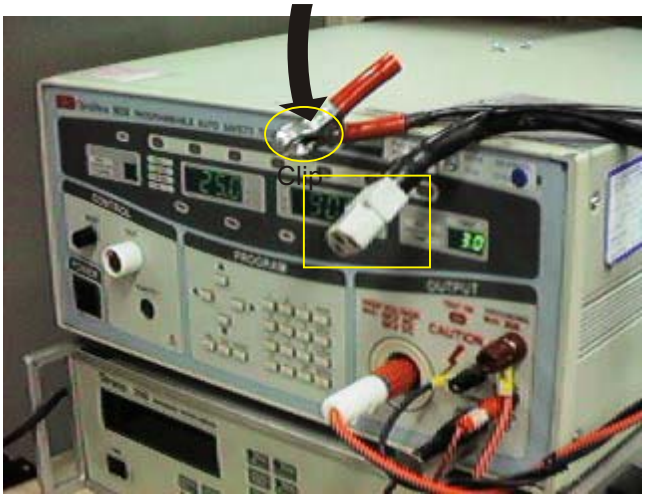
3. Equipments and Connection

3.1. Equipments
For example :
- ChenHwa 9032 PROGRAMMABLE AUTO SAFETY TESTER
- ChenHwa 510B Digital Grounding Continuity Tester
- ChenHwa 901 (AC Hi-pot test), 902 (AC, DC Hi-pot test) Withstanding Tester

3.2. Connection

* Turn on the power switch of monitor before Hipot and Ground Continuity testing.

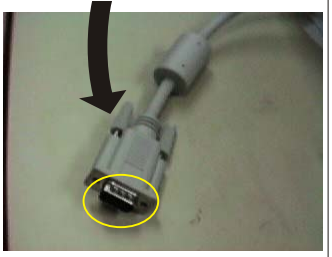
Clip



(ChenHwa 9032 tester)

Video cable

Connect the "video cable" or "grounding screw" to the CLIP on your tester.



Grounding screw

Connect the power cord to the monitor.

Power outlet (Rear view of monitor)

4. Recording

Hipot and Ground Continuity testing records have to be kept for a period of 10 years.

DDC Instructions

General

DDC Data Re-programming
In case the DDC data memory IC or main EEPROM which storage all factory settings were replaced due to a defect, the serial numbers have to be re-programmed.
It is advised to re-soldered DDC IC and main EEPROM from the old board onto the new board if circuit board have been replaced, in this case the DDC data does not need to be re-programmed.

Additional information
Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification Data(EDID) information may be also obtained from VESA.

DDC EDID structure
For Analog interface: Standard Version 3.0
Structure Version 1.2
For Digital inferface: Standard Version 3.0
Structure Version 1.3

System and equipment requirements

1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98.
3. EDID301.EXE program (3138 106 10103) as shown in Fig. 1
4. A/D Alignment kits (3138 106 10079):
   inclusion : a. Alignment box x1 (as Fig. 2)

Fig. 2

b. Printer cable x1
c. (D-Sub) to (D-Sub) cable x1
d. (DVI-D) to (D-Sub) cable x1 (as Fig. 3)

Note: The EDID301.EXE (Release Version 1.58 20000818)is a windows-based program, which cannot be run in MS-DOS.

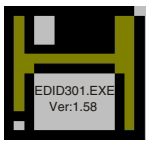
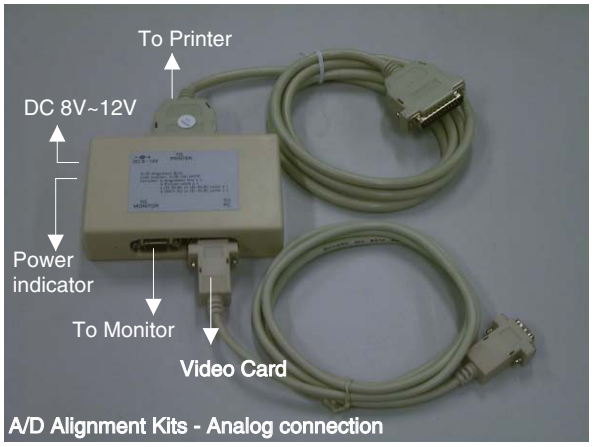


Fig. 1
Diskette with EDID301.EXE

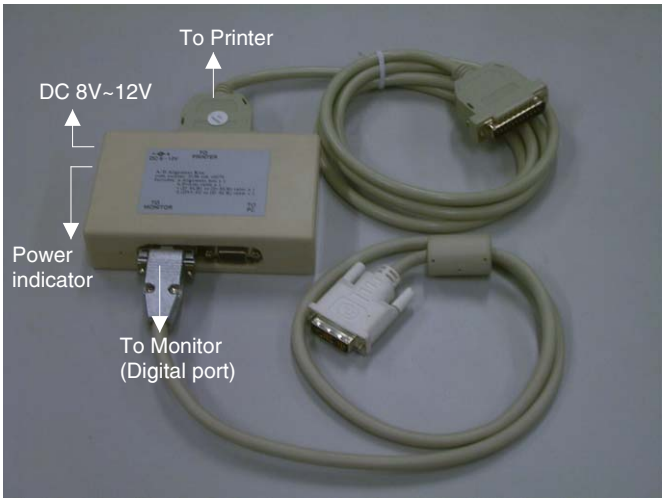
Fig. 3

(DVI-D) to (D-Sub) cable



A/D Alignment Kits - Analog connection

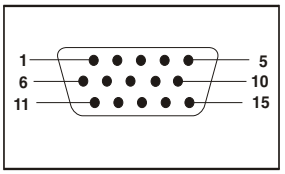
Note: The alignment box has already build-in a batteries socket for using batteries (9V) as power source. Pull out the socket by remove four screws at the rear of box. Please do not forget that remove batteries after programming. The energy of batteries can only drive circuits for a short period of time.



A/D Alignment Kits - Digital connection

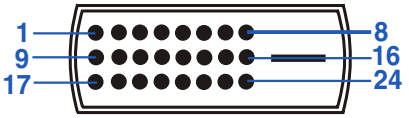
Pin assignment

A. 15-pin D-Sub Connector



Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	+5V
2	Green video input	10	Ground
3	Blue video input	11	Ground
4	Ground	12	Serial data line(SDA)
5	No Connected	13	H.Sync
6	Red video ground	14	V.Sync(VCLK for DDC)
7	Green video ground	15	Data clock line(SCL)
8	Blue video ground		

B. DVI-D Connector



Pin No.	Assignment	Pin No.	Assignment
1	TMDS Data 2-	13	TMDS Data 3+
2	TMDS Data 2+	14	+5V Power
3	TMDS Data 2/4 Shield	15	Ground (+5V)
4	TMDS Data 4-	16	Hot Plug Detect
5	TMDS Data 4+	17	TMDS Data 0-
6	DDC Clock	18	TMDS Data 0+
7	DDC Data	19	TMDS Data 0/5 Shield
8	No connect	20	TMDS Data 5-
9	TMDS Data 1-	21	TMDS Data 5+
10	TMDS Data 1+	22	TMDS Clock Shield
11	TMDS Data 1/3 Shield	23	TMDS Clock+
12	TMDS Data 3-	24	TMDS Clock-

4. Configuration and procedure

There are threeips contained serial number on the circuit board, Analog DDC IC (7202), Digital DDC IC (7201) and main EEPROM (7362) which storage all factory settings. Following descriptions are the connection and procedure for Analog DDC IC and Digital DDC IC, the main EEPROM can be re-programmed along with Analog IC by enable factory memory data write function on the DDC program (EDID301.EXE).

Initialize alignment box

In order to avoid that monitor entering power saving mode due to sync will cut off by alignment box, it is necessary to initialize alignment box before running programming software (EDID301.EXE). Following steps show you the procedures and connection.

Step 1: Supply 8~12V DC power source to the Alignment box by plugging a DC power cord or using batteries.
Step 2: Connecting printer cable and video cable of monitor as Fig. A
Step 3: Run the EDID301.EXE program until the main menu appears. This is for initialize alignment box.

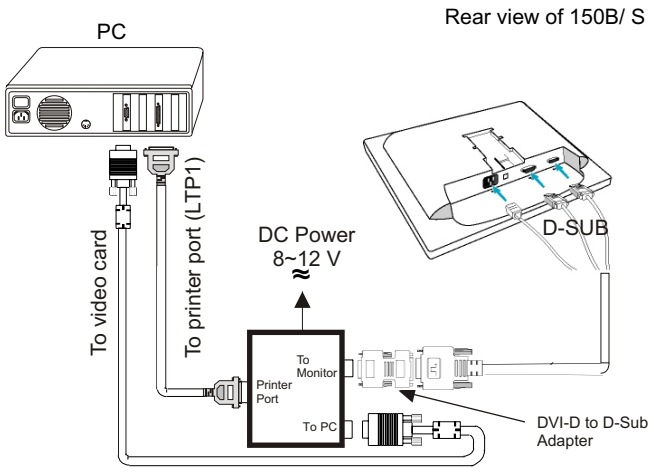


Fig. 3

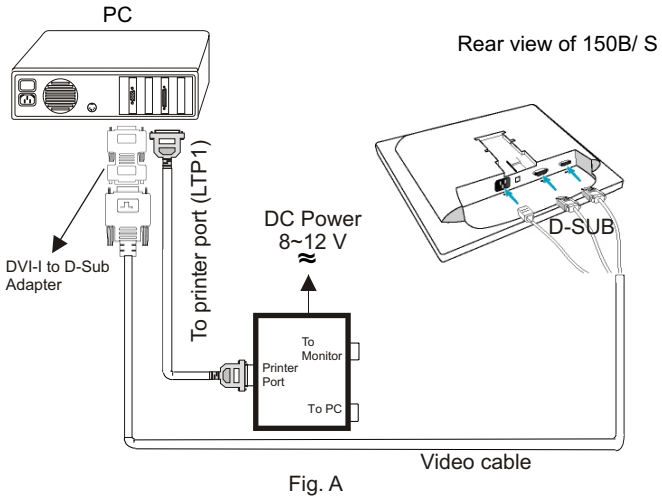


Fig. A

Note: DVI-I to D-Sub adapter can be removed if graphic card of PC with a DVI-I interface connector.

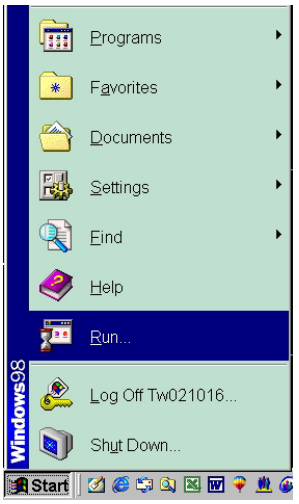
Re-programming DDC IC

Step 1: After initialize alignment box, connecting all cables and box as Fig. 3
Step 2: Press and hold "OK" and "AUTO" buttons then power on the monitor.
Step 3: Follow the steps on DDC re-programming instructions to staring re-programming.

5. DDC re-programming instructions

Start on DDC program

Start Microsoft Windows.
1. Insert the disk containing EDID301.EXE program into floppy disk drive.
2. Click Start, choose Run at start menu of Windows 95/98.



DDC Instructions

3. At the submenu, type the letter of your computer's floppy disk drive followed by :EDID301 (for example, A:\EDID301.exe,) as shown in Fig. 5.

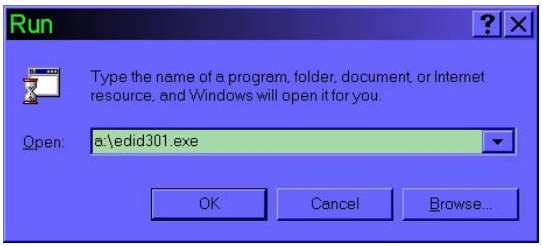


Fig. 5

4. Click OK button. The main menu appears (as shown on Fig. 6).

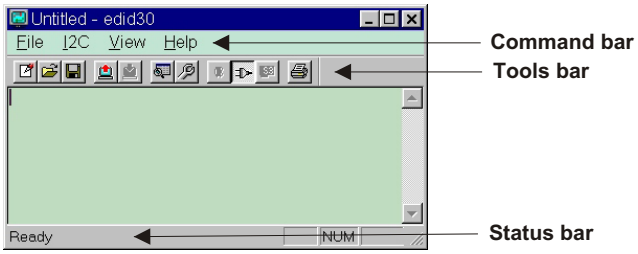


Fig. 6

Note:

If the connection is improper, you will see the following error message before entering the main menu. Meanwhile, the (read EDID) function will be disable. At this time, please make sure all cables are connected correctly and fixedly, and the

Loading DDC data from monitor

1. Click icon on the tools bar to bring up the Configuration Setup windows as Fig.7
2. Select the DDC2B as the communication channel.
3. Enable Factory memory data write function and fill in page address F0 to the block.
4. Disable Software DDC function.
5. Click OK button to confirm your selection.

Note: The Factory memory data write function will allow EDID301 to rewrite serial numbers both Analog DDC IC and main EEPROM to make sure both S/N are exactly the same. You may confirm the function by checking the S/N at Product information of the OSD menu after restarting the monitor.

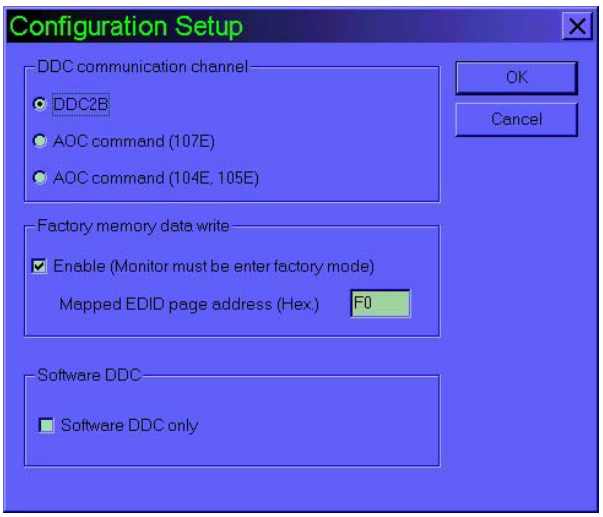
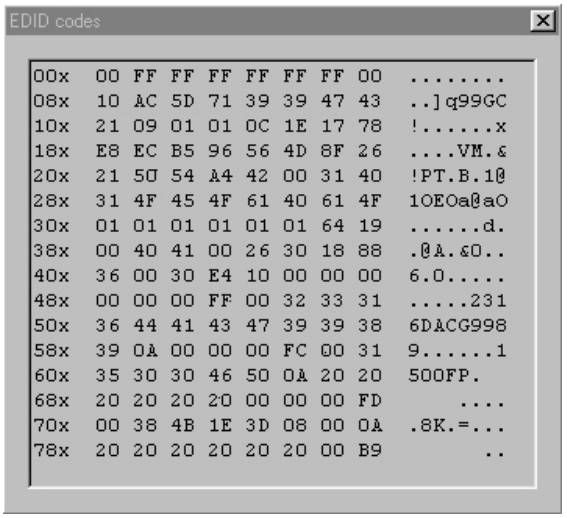


Fig. 7

6. Click icon to read DDC EDID data from monitor. The EDID codes will display on screen as following. (The EDID codes are depend on the model.) Meanwhile, The status bar will indicate 00% to 100% when reading.



DDC Instructions

Note:

During the loading, EDID30 will verify the EDID data which just loaded from monitor before proceed any further function, once the data structure of EDID can not be recognized, the following error message will appear on the screen (Fig. 8). Please confirm following steps to avoid this message.

1. The data structure of EDID was incorrect.
2. DDC IC that you are trying to load data is empty.
3. Wrong communication channel has set at configuration setup Windows.
4. Cables loosed or poor contact of connection.

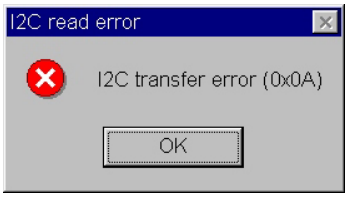
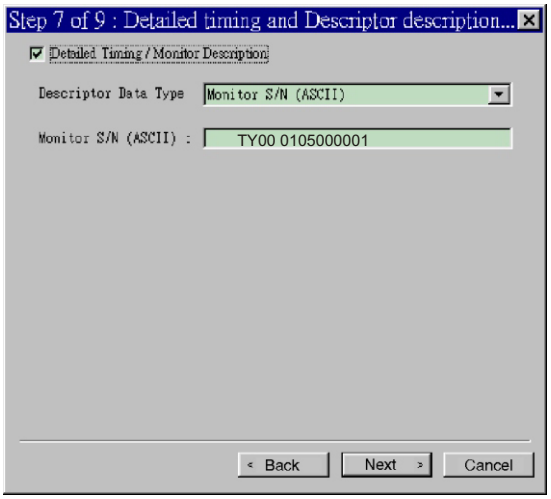


Fig. 8

Modify DDC data (Serial No.)

1. Click icon on the toosl bar.
2. Click Next > till the Step 7 of 9 window appears.
3. Type the new Serial No. (for example, TY00 0105000001).
4. Click Next > till the last step window appears, then click Finish to exit the Step window.


Step 7 of 9 : Detailed timing and Descriptor description...
Detailed Timing / Monitor Description
Descriptor Data Type
Monitor S/N (ASCII)
Monitor S/N (ASCII) :
TY00 0105000001
< Back
Next >
Cancel

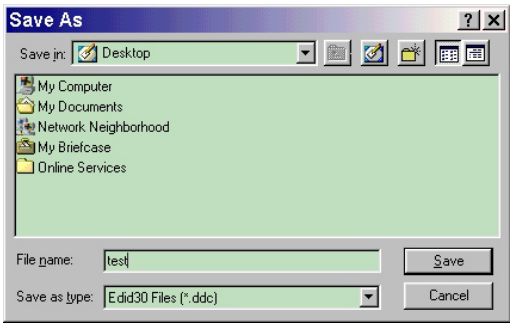
Write DDC data to monitor

1. Click icon from the tools bar to starting rewrite DDC data.
2. Click for confirmation.

Save DDC data as a file

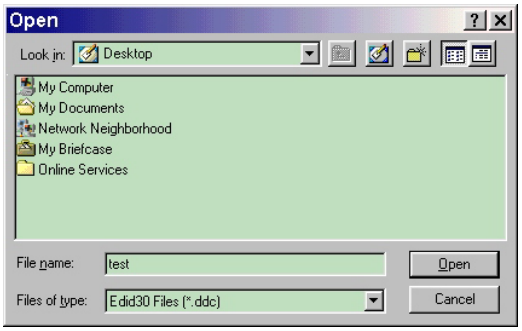
Sometimes, you maybe need to save DDC data as a text file for using on other DDC chip. To save DDC data, follow the steps below:

1. Click icon on the tools bar and type a file name you like. The file format is ddc type which can be open by Microsoft WordPad.
2. Click Save button.



Load DDC data from file

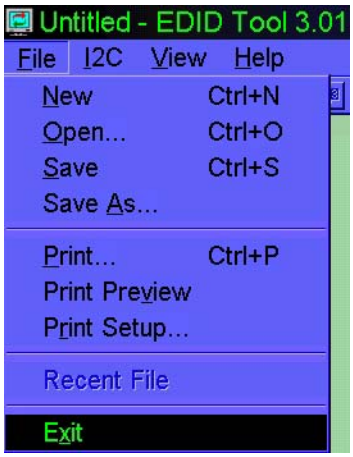
1. Click from the tools bar.
2. Select the file you want to open.
3. Click . Open Button.



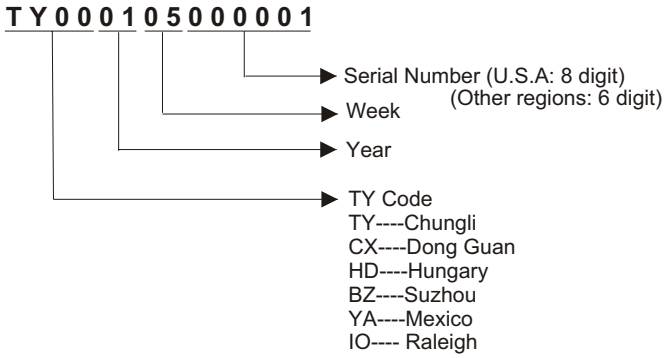
4. Now you can re-programming DDC data which you just loaded from a file, please be confirmed that model and serial number are correct and match with the monitor you are trying to re-write.

Exit DDC program

1. Click file command on the command bar then select Exit.



Definition of Serial Number



DDC data of Analog

THE DISPLAY DATA CHANNEL (DDC) 1/2B CONTENT INCLUDING (FOR CPT ANALOG)

Vendor/Product Identification
- ID Manufacturer Name : PHL
- ID Product Code : 080D (HEX.)
- ID Serial Number : 1E240 (DEC.)
- Week of Manufacture : 1
- Year of Manufacture : 2002

EDID Version, Revision
- Version : 1
- Revision : 3

Basic Display Parameters/Features
- Video Input Definition : Analog Video Input
  0.714V/0.286V (1.00Vpp)
  without Blank-to-Black Setup
  Separate Sync
  Composite Sync
  Sync on Green
  no Serration required
- Maximum H Image Size : 30
- Maximum V Image Size : 23
- Display Transfer Characteristic (gamma) : 2.2
- Feature Support (DPMS) : Standby
  Suspend
  Active Off
- Display Type : RGB color display
- Preferred Timing Mode : Detailed timing block 1

Color Characteristics
- Red X coordinate : 0.627
- Red Y coordinate : 0.347
- Green X coordinate : 0.308
- Green Y coordinate : 0.556
- Blue X coordinate : 0.148
- Blue Y coordinate : 0.092
- White X coordinate : 0.316
- White Y coordinate : 0.328

Established Timings
- Established Timings I : 720 x 400 @70Hz (IBM,VGA)
  640 x 480 @60Hz (IBM,VGA)
  640 x 480 @67Hz (Apple,Mac II)
  640 x 480 @72Hz (VESA)
  640 x 480 @75Hz (VESA)
  800 x 600 @56Hz (VESA)
  800 x 600 @60Hz (VESA)
- Established Timings II : 800 x 600 @72Hz (VESA)
  800 x 600 @75Hz (VESA)
  832 x 624 @75Hz (Apple,Mac II)
  1024 x 768 @60Hz (VESA)
  1024 x 768 @70Hz (VESA)
  1024 x 768 @75Hz (VESA)
- Manufacturer's timings : Unused

Detailed Timing #1
- Pixel Clock (MHz) : 65
- H Active (pixels) : 1024
- H Blanking (pixels) : 320
- V Active (lines) : 768
- V Blanking (lines) : 38
- H Sync Offset (F Porch) (pixels): 24
- H Sync Pulse Width (pixels) : 136
- V Sync Offset (F Porch) (lines) : 3
- V Sync Pulse Width (lines) : 6
- H Image Size (mm) : 307
- V Image Size (mm) : 230
- H Border (pixels) : 0
- V Border (lines) : 0
- Flags : Non-interlaced
  : Normal Display, No stereo
  : Digital Separate sync.
  : Negative Vertical Sync.
  : Negative Horizontal Sync.

Monitor Descriptor #2
- Serial Number : TY 123456

Monitor Descriptor #3
- Monitor Name : PHILIPS 150B

Monitor Descriptor #4
- Monitor Range Limits
- Min. Vt rate Hz : 56
- Max. Vt rate Hz : 76
- Min. Horiz. rate kHz : 30
- Max. Horiz. rate kHz : 61
- Max. Supported Pixel : 80

Extension Flag : 0

Check sum : 00 (HEX.)

****

EDID data (128bytes)

****

```
 0: 00  1: ff  2: ff  3: ff  4: ff  5: ff  6: ff  7: 00
 8: 41  9: 0c 10: 0d 11: 08 12: 40 13: e2 14: 01 15: 00
16: 01 17: 0c 18: 01 19: 03 20: 2e 21: 1e 22: 17 23: 78
24: ea 25: bd 26: 20 27: a0 28: 58 29: 4e 30: 8e 31: 26
32: 17 33: 51 34: 54 35: bf 36: ee 37: 00 38: 01 39: 01
40: 01 41: 01 42: 01 43: 01 44: 01 45: 01 46: 01 47: 01
48: 01 49: 01 50: 01 51: 01 52: 01 53: 01 54: 64 55: 19
56: 00 57: 40 58: 41 59: 00 60: 26 61: 30 62: 18 63: 88
64: 36 65: 00 66: 33 67: e6 68: 10 69: 00 70: 00 71: 18
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 68 97: 69 98: 6c 99: 69 100: 70 101: 73 102: 20 103: 31
104: 35 105: 30 106: 42 107: 0a 108: 00 109: 00 110: 00 111: fd
112: 00 113: 38 114: 4c 115: 1e 116: 3d 117: 08 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 00
```

DDC data of Analog

THE DISPLAY DATA CHANNEL (DDC) 1/2B CONTENT INCLUDING (FOR LG ANALOG)

Vendor/Product Identification
- ID Manufacturer Name : PHL
- ID Product Code : 080D (HEX.)
- ID Serial Number : 1E240 (DEC.)
- Week of Manufacture : 1
- Year of Manufacture : 2002

EDID Version, Revision
- Version : 1
- Revision : 3

Basic Display Parameters/Features
- Video Input Definition : Analog Video Input
  0.714V/0.286V (1.00Vpp)
  without Blank-to-Black Setup
  Separate Sync
  Composite Sync
  Sync on Green
  no Serration required
- Maximum H Image Size : 30
- Maximum V Image Size : 23
- Display Transfer Characteristic (gamma) : 2.2
- Feature Support (DPMS) : Standby
  Suspend
  Active Off
- Display Type : RGB color display
- Preferred Timing Mode : Detailed timing block 1

Color Characteristics
- Red X coordinate : 0.626
- Red Y coordinate : 0.347
- Green X coordinate : 0.308
- Green Y coordinate : 0.588
- Blue X coordinate : 0.146
- Blue Y coordinate : 0.119
- White X coordinate : 0.313
- White Y coordinate : 0.329

Established Timings
- Established Timings I : 720 x 400 @70Hz (IBM,VGA)
  640 x 480 @60Hz (IBM,VGA)
  640 x 480 @67Hz (Apple,Mac II)
  640 x 480 @72Hz (VESA)
  640 x 480 @75Hz (VESA)
  800 x 600 @56Hz (VESA)
  800 x 600 @60Hz (VESA)
- Established Timings II : 800 x 600 @72Hz (VESA)
  800 x 600 @75Hz (VESA)
  832 x 624 @75Hz (Apple,Mac II)
  1024 x 768 @60Hz (VESA)
  1024 x 768 @70Hz (VESA)
  1024 x 768 @75Hz (VESA)
- Manufacturer's timings : Unused

Detailed Timing #1
- Pixel Clock (MHz) : 65
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- H Blanking (pixels) : 320
- V Active (lines) : 768
- V Blanking (lines) : 38
- H Sync Offset (F Porch) (pixels): 24
- H Sync Pulse Width (pixels) : 136
- V Sync Offset (F Porch) (lines) : 3
- V Sync Pulse Width (lines) : 6
- H Image Size (mm) : 307
- V Image Size (mm) : 230
- H Border (pixels) : 0
- V Border (lines) : 0
- Flags : Non-interlaced
  : Normal Display, No stereo
  : Digital Separate sync.
  : Negative Vertical Sync.
  : Negative Horizontal Sync.

Monitor Descriptor #2
- Serial Number : TY 123456

Monitor Descriptor #3
- Monitor Name : PHILIPS 150B

Monitor Descriptor #4
- Monitor Range Limits
- Min. Vt rate Hz : 56
- Max. Vt rate Hz : 76
- Min. Horiz. rate kHz : 30
- Max. Horiz. rate kHz : 61
- Max. Supported Pixel : 80

Extension Flag : 0

Check sum : AD (HEX.)

****
EDID data (128 bytes)
****

```
 0: 00  1: ff  2: ff  3: ff  4: ff  5: ff  6: ff  7: 00
 8: 41  9: 0c 10: 0d 11: 08 12: 40 13: e2 14: 01 15: 00
16: 01 17: 0c 18: 01 19: 03 20: 2e 21: 1e 22: 17 23: 78
24: ea 25: 7e 26: a5 27: a0 28: 58 29: 4e 30: 96 31: 25
32: 1e 33: 50 34: 54 35: bf 36: ee 37: 00 38: 01 39: 01
40: 01 41: 01 42: 01 43: 01 44: 01 45: 01 46: 01 47: 01
48: 01 49: 01 50: 01 51: 01 52: 01 53: 01 54: 64 55: 19
56: 00 57: 40 58: 41 59: 00 60: 26 61: 30 62: 18 63: 88
64: 36 65: 00 66: 33 67: e6 68: 10 69: 00 70: 00 71: 18
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 68 97: 69 98: 6c 99: 69 100: 70 101: 73 102: 20 103: 31
104: 35 105: 30 106: 42 107: 0a 108: 00 109: 00 110: 00 111: fd
112: 00 113: 38 114: 4c 115: 1e 116: 3d 117: 08 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: ad
```

Serial number modification - EEPROM (OSD)

When the serial number inside DDC IC has been changed, the serial number inside EEPROM (in User mode, the serial number of monitor can be found by OSD as shown in Fig. 1 also.) should be changed at the same time.
Serial number modification in EEPROM (near CPU) for On Screen Display (Factory mode & User mode)

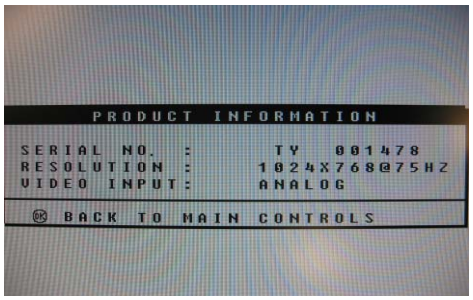


Fig. 1

Due to different communication structures were implement for DDC IC and EEPROM (serial number) application as below.

(15pin D-SUB) --------- CPU --------- DDC IC
I2C I2C

(15pin D-SUB) --------- CPU --------- EEPROM (OSD -> Serial number)
RS232 I2C

Update/Modify the serial number of monitor as shown in Fig. 1, please follow the steps as below.

1. connection of RS232 COMMUNICATION as shown in Fig. 2

connection of RS232 COMMUNICATION

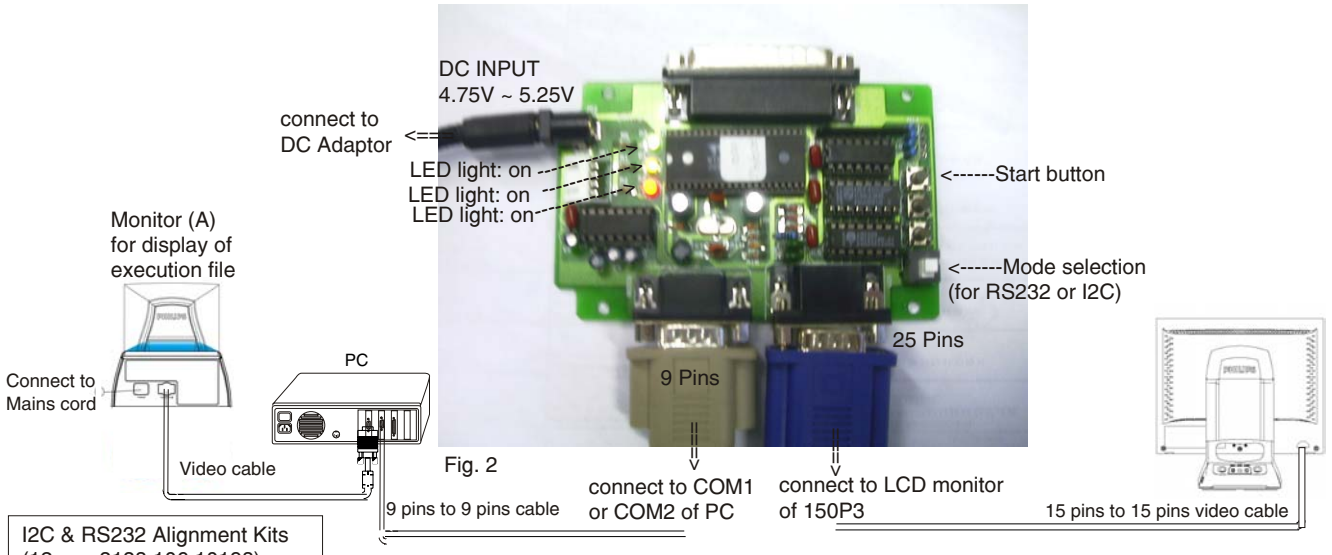


Fig. 2

I2C & RS232 Alignment Kits
(12nc = 3138 106 10198)

Contents :
1. I2C & RS232 Alignment box
2. 9 pins to 9 pins cable

- Connect DC adaptor **(4.75 ~ 5.25Vdc)** to Alignment box.
  3 LED light should be at ON status at this moment.
- Connect 9 pins cable
- Connect 15pins D-SUB between Monitor and Alignment box.
  Bring up Fig. 3

Fig. 3

- Press button1, the Red LED light should be at OFF status at this moment.
  Bring up Fig.5.
  (If it is not at RS232 COMMUNICATION status, Mode selection key can be used for exchange.
  For example : RS232 COMMUNICATION, I2C COMMUNICATION)

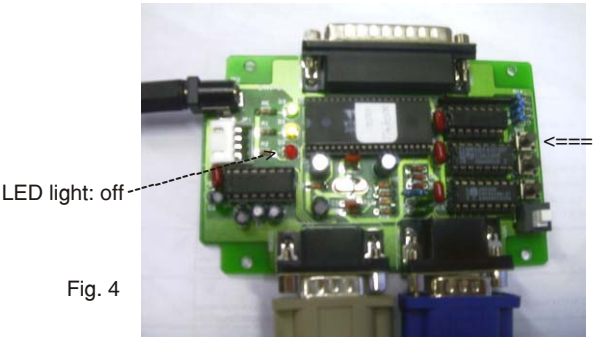


Fig. 4

Fig. 5

2. Update/Modify serial number by DDCRUN (execution file) in Factory mode.

- Make a directory and copy "DDCRUN.EXE", "DDC.CFG", "DDC.HEX" into folder as shown in Fig. 6.

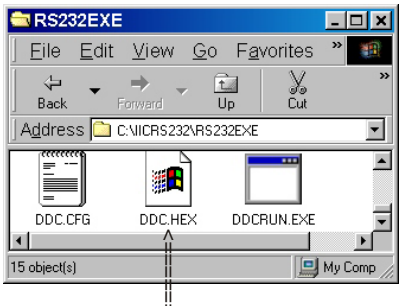


Fig. 6

differ from "PHL15LG.P3-DDC-ANALOG.ddc"

Serial number modification - EEPROM (OSD)

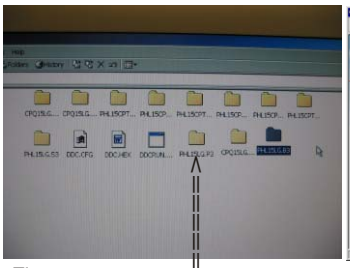


Fig. 6
PHL15LG.P3 (LG panel)

Fig. 7
PHIL15LG.P3 (LG panel)

****

The file name of "DDC.HEX" has been defined by source code of DDCRUN.EXE.
The contents of DDC.HEX are different as shown in Fig. 6 & 7.
Make sure to put "DDC.HEX (for example : ddc contents (Fig.6) of PHL15LG.P3) together with "DDC.CFG" & "DDCRUN.EXE" each time.
It means [copy different DDC.HEX and put it together with "DDC.CFG" & "DDCRUN.EXE"] each time for application of serial number. CPT panel use PHL15CPT.P3/ DDC.HEX□s

****

In DOS mode : (made directory already)
C:\WINDOWS>CD\ (press Enter)
C:\>CD IICRS232 (press Enter)
C:\IICRS232>CD RS232EXE (press Enter)
C:\IICRS232\RS232EXE>DIR (press Enter)
Folder with "DDC.CFG","DDC.HEX",DDCRUN.EXE" as shown in Fig. 8.

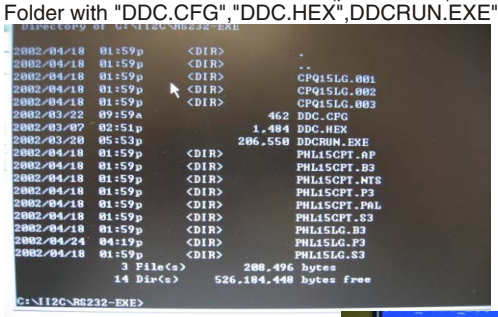


Fig. 8

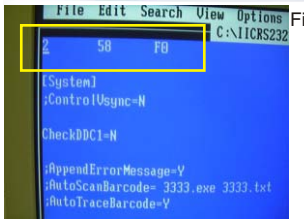


Fig. 9

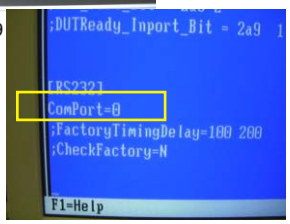


Fig. 10

C:\IICRS232\RS232EXE>EDIT DDC.CFG (press Enter)
Config. setting "2 58 F0" as shown in Fig. 9 for 150P3 (HUDSON-II).
Check ComPort setting as shown in Fig. 10 for RS232 (9 pins) cable.

3. Serial number application - Barcode format setting

C:\IICRS232\RS232EXE>DDCRUN (press Enter)
Bring up : definition of Barcode format setting as shown in Fig. 11.

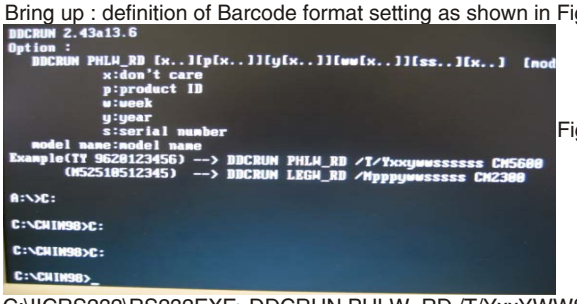


Fig. 11

C:\IICRS232\RS232EXE>DDCRUN PHLW_RD /T/YxxYWWSSSSSS (press Enter)
Bring up : contents of DDCRUN as shown in Fig. 12.

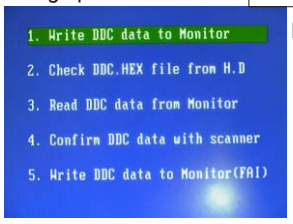

1. Write DDC data to Monitor
2. Check DDC.HEX file from H.D
3. Read DDC data from Monitor
4. Confirm DDC data with scanner
5. Write DDC data to Monitor(FAI)

Fig. 12

"PHLW_RD (fixed name)" was defined by source code of DDCRUN for Philips models already.

As shown in Fig. 12 (1. write DDC data to monitor), press Enter
Bring up : contents for fill out Serial number as shown in Fig. 13.

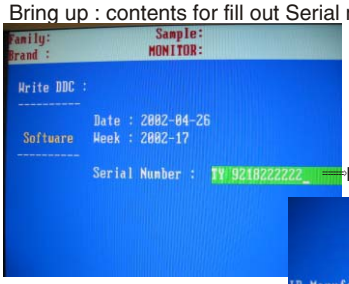


Fig. 13
Number definition:TY 9218222222
9 is fixed, 2 for year 2002
18 for week
222222 is for new serial number
==For example : Fill out TY 9218222222

Press Enter Fig. 14

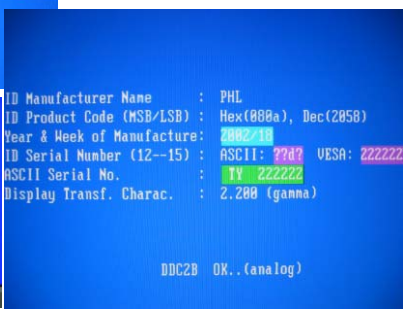

ID Manufacturer Name : PHL
ID Product Code (MSB/LSB) : Hex(080a), Dec(2058)
Year & Week of Manufacture: 2002/18
ID Serial Number (12--15) : ASCII: ??d? VESA: 222222
ASCII Serial No. : TY 222222
Display Transf. Charac. : 2.200 (gamma)
DDC2B OK..(analog)

Fig. 15

Bring up : Fig. 14 to ask "Entry Factory mode". (Press Enter)
Bring up : Fig. 15, new series number write down success.

Access Factory Mode

Step 1 : Turn off monitor.
Step 2 : [Push Menu " **OK** " & " **AUTO** " buttons at the same time and hold it] + [Press power " ⏻ " to turn on monitor button and release it instantly], Bring up Fig. 16
Press Enter
Bring up : Fig. 17 (a few seconds only)

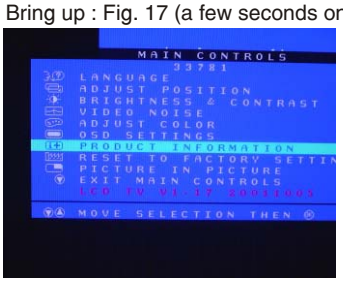


Fig. 16

Fig. 17 Serial number - (Before)

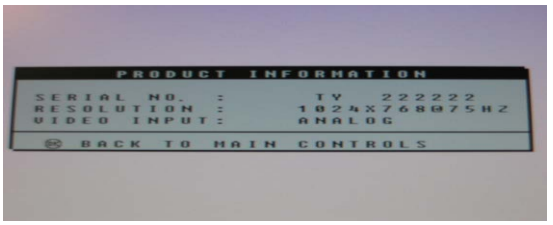
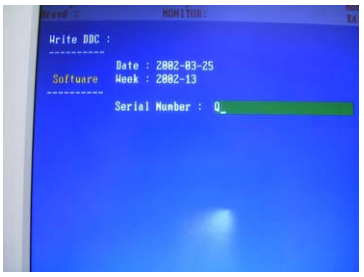
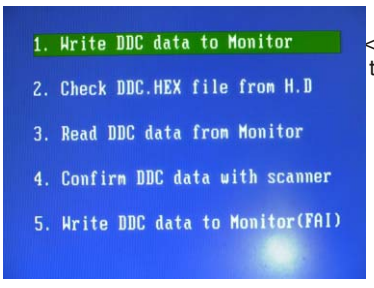


Fig. 18 Serial number - (After)



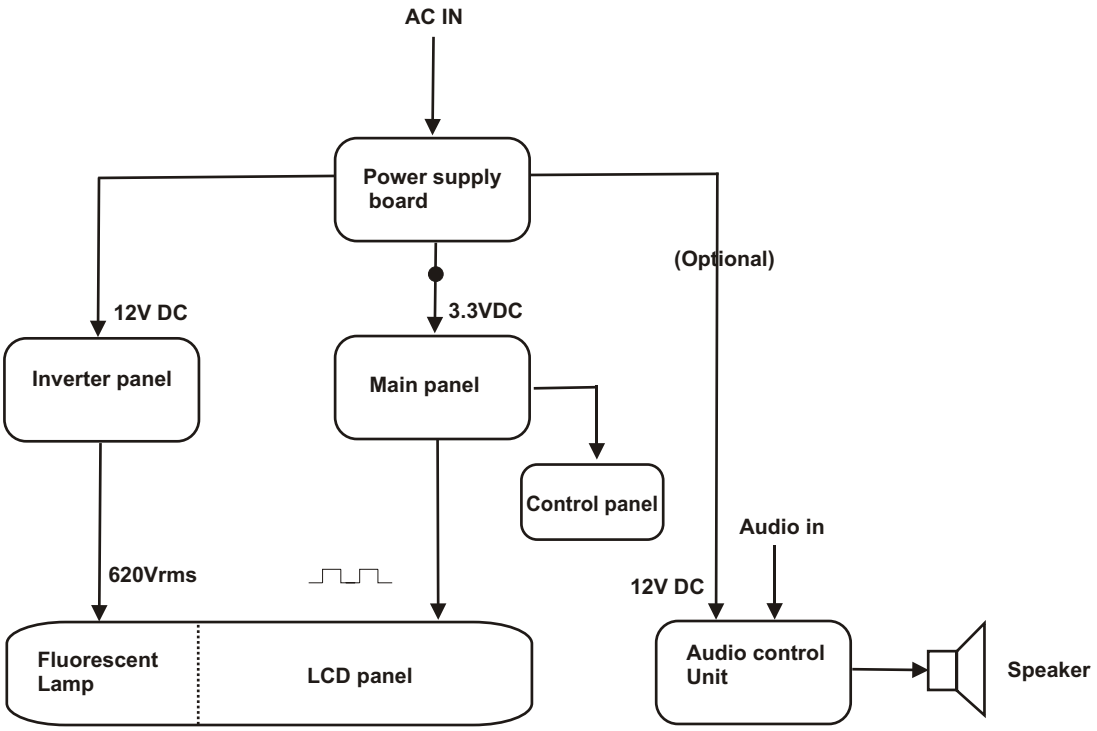
<==Fill out "Q" : Quit Serial number application.

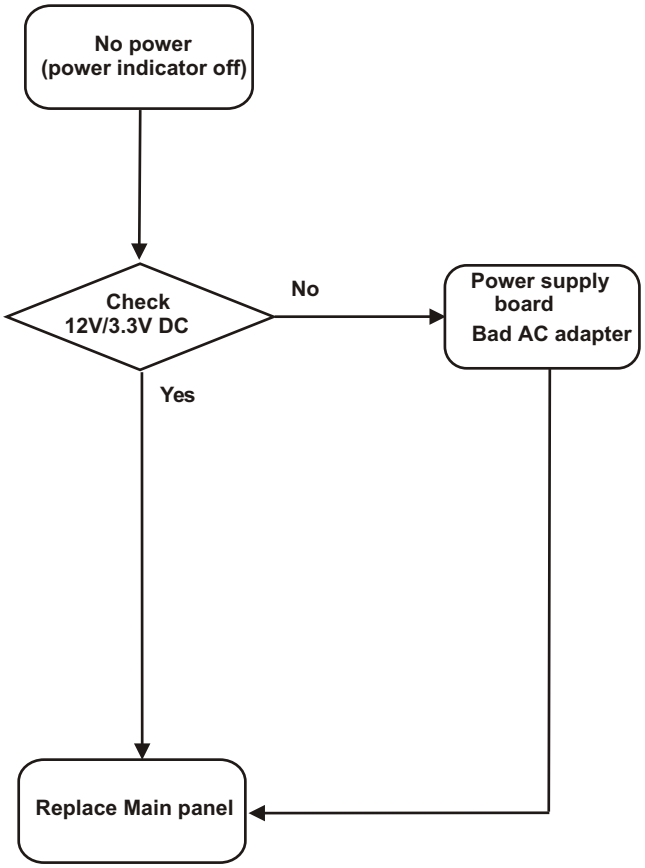

1. Write DDC data to Monitor
2. Check DDC.HEX file from H.D
3. Read DDC data from Monitor
4. Confirm DDC data with scanner
5. Write DDC data to Monitor(FAI)

<==Press "ESC" : Go back to DOS mode. Then, finish.

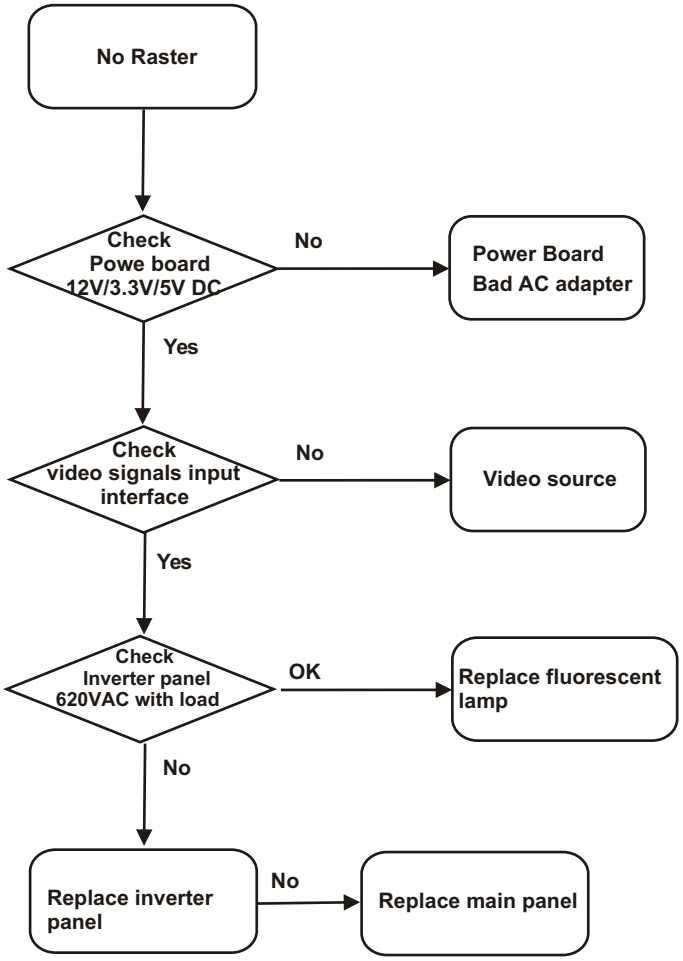
Repair Flow Chart

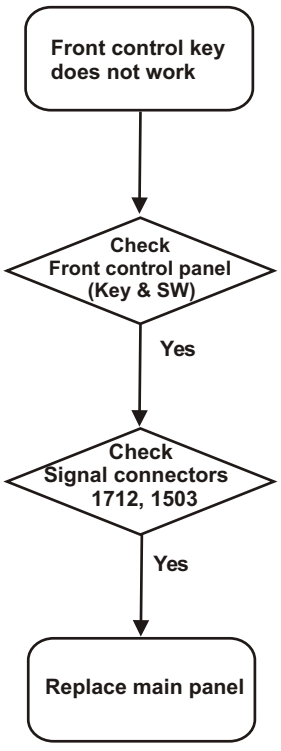
Block Diagram



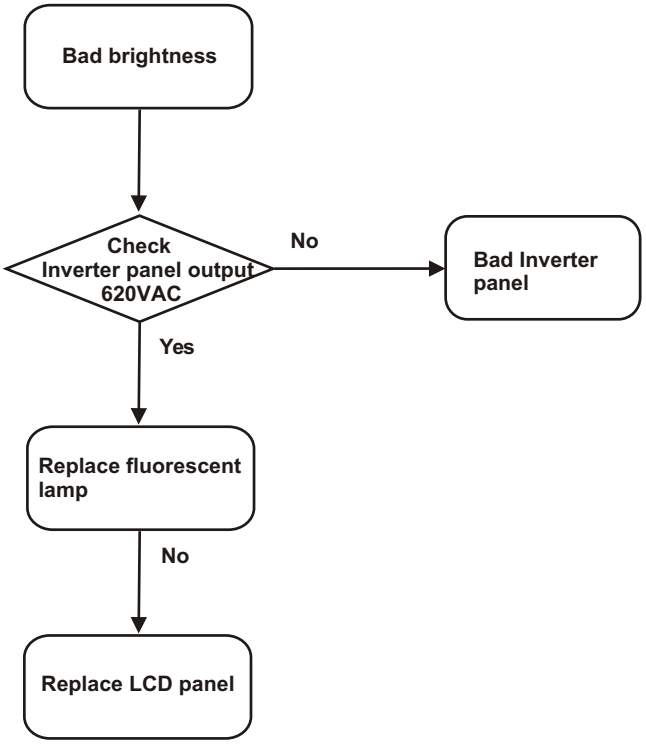


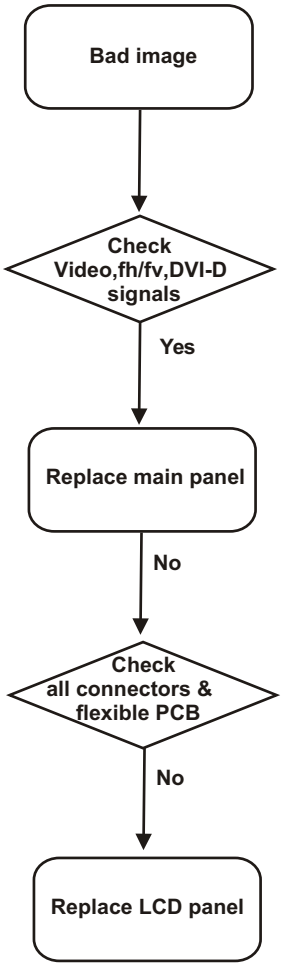
Repair Flow Chart





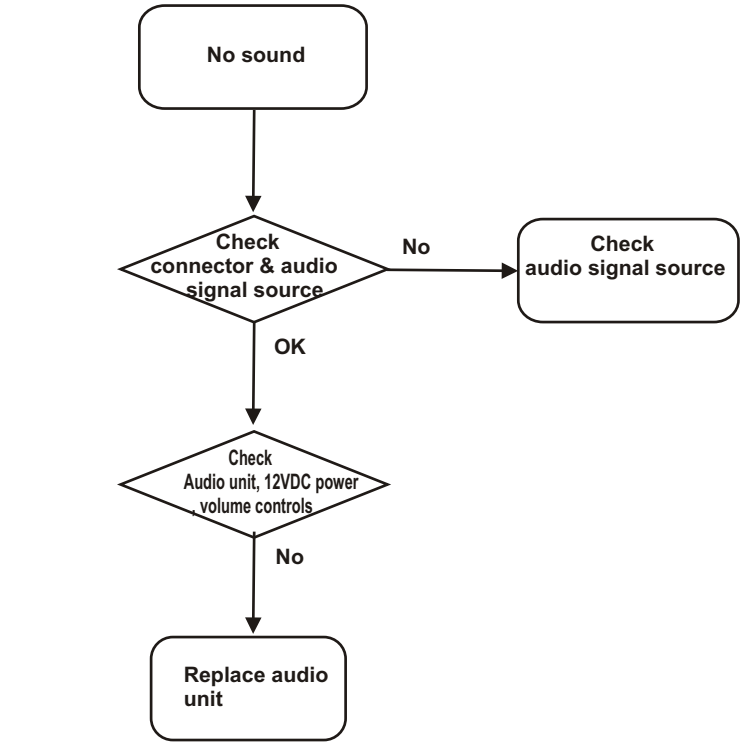
Repair Flow Chart





Repair Flow Chart

(Optional)



Colour adjustment

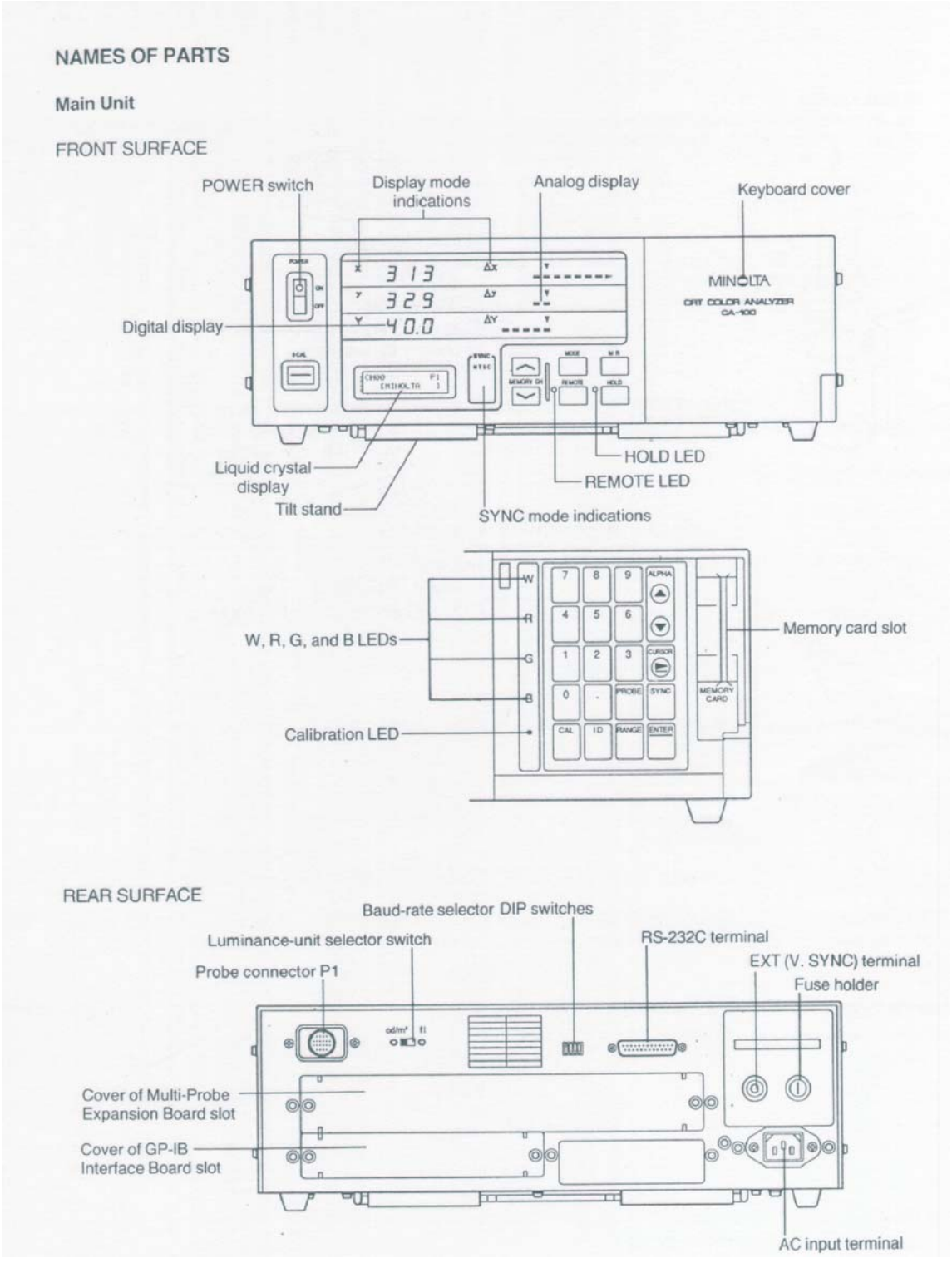
LCD COLOUR ANALYZER - CA110

1. SUMMARY

The LCD Colour Analyzer CA-110 was designed to upgrade the white-balanceprocess on production lines for colour LCD televisions and computer colour LCD panels in the colour LCD industry. The CA-110 consists of a main unit and a measuring probe.
The measuring probe utilizes an optical system suitable for measurement of colour LCDs and is equipped with a viewfinder to verify the area to be measured.

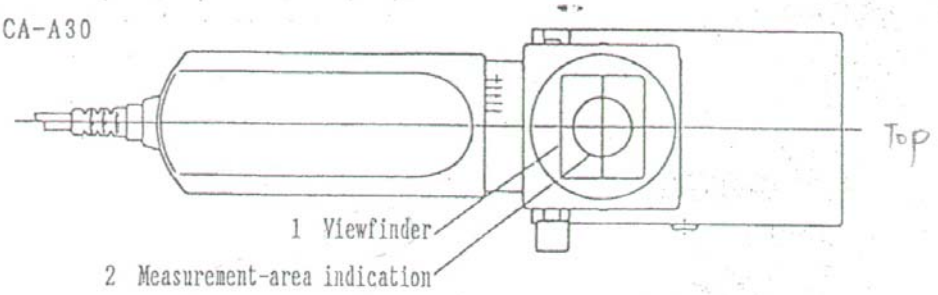
2. APPLICATIONS

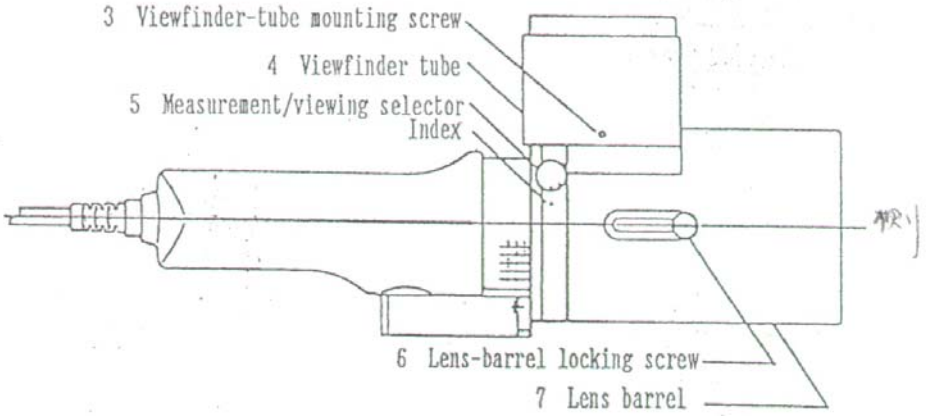
* White-balance adjustment and inspection on LCD production lines.
* Quality control and shipping inspection by LCD manufacturers.
* Inspection of LCDs upon receipt by computer manufacturers.

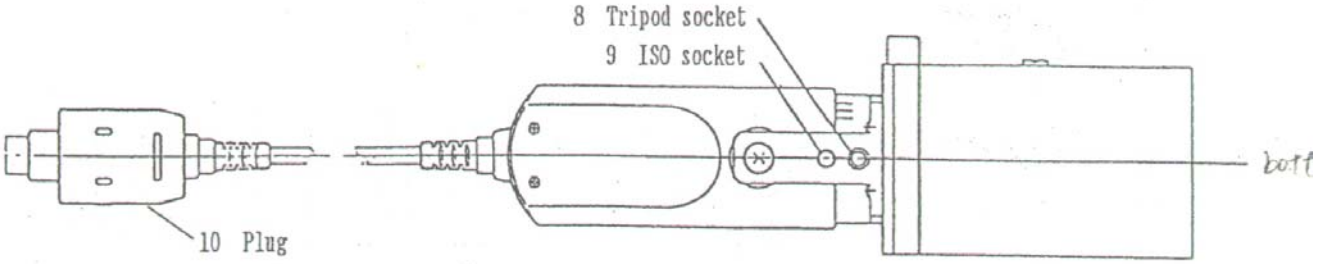


Colour Adjustment

Probe CA-A30







1.	Viewfinder	Shows image seen by measuring probe.
2.	Measurement-area indication	Indicates area to be measured.
3.	Viewfinder-tube mounting screw	Removing these two screws (one on each side) allows the viewfinder tube to be removed to clean viewfinder, etc.
4.	Viewfinder tube	Can be moved to minimize the effects of surrounding light and provide the best view of the viewfinder image.
5.	Measurement/viewing selector	Moves internal mirror; set to ○ for measurement and to ● for viewing or for zero calibration.
6.	Lens-barrel locking screw	Locks lens barrel at a fixed position.
7.	Lens barrel	Can be moved back and forth to set measurement angle.
8.	Tripod socket	Can be used to mount measurement probe on a tripod. Depth: 6mm.
9.	ISO socket	Can be used to mount measurement probe. ISO Ø5mm, depth: 6mm
10.	Plug	Used to connect measuring probe to main unit or optional Multi-Probe Expansion Board.

Colour adjustment

ZERO CALIBRATION

Zero calibration is performed to determine the output of the measuring probe when no light reaches the sensor and to set this as the zero point to which all other measurements are referenced. Zero calibration must be performed after the POWER switch has been set ON brfore taking any measurements.

To perform zero calibration :

* Before performing zero calibration, check that the measuring probe has been connected to probe connector P1.

1. Check that the POWER switch is set to ON.

2. Set the measuring/viewing selector to the (viewing) position. (An image can be seen in the viewfinder, but no light will reach the sensor.)

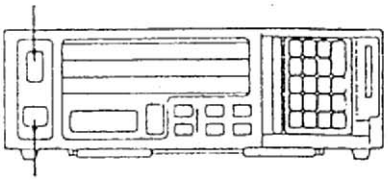
3. Press 0-CAL.

   * If zero calibration is being performed immediately after the POWER switch has been set to ON, press 0-CAL after "PUSH 0-CAL KEY" appears in the liquid crystal display.

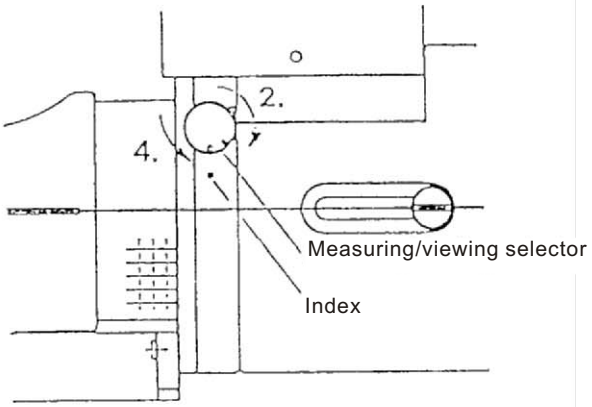
4. Set the measuring/viewing selector to the position. Measurements will be started immediately.

DARKEN PROBE	Display after POWER switch is set to ON
↓	Approximately 5 seconds
DARKEN PROBE PUSH 0-CAL KEY	
↓	
ZERO CALIBRATION	Press 0-CAL, Performing zero calibration
↓	
CH00 P1 E1 [ ]	Zero calibration completed

1. POWER switch



3. 0-CAL



- "E1" will appear in the liquid crystal display the first time the CA-110 is used after shipment because no standard color has been set.
- Zero calibration can be performed at any time, even if "PUSH 0-CAL KEY" is not shown in the liquid crystal display.

Note:

- If the luminance of the LCD to be measured is 5.00cd/m² (1.46 fL) or less, wait at least five minutes after setting POWER switch to ON before performing zero calibration. Also, when measuring LCDs of low luminance, zero calibration should be performed approximately once an hour to ensure accuracy.
- If the ambient temperature changes after zero calibration has been performed, perform zero calibration again.
- Do not press any key while zero calibration is being performed. If a key is pressed, the time required for zero calibration will become longer.

To check if zero calibration was performed correctly, place the receptor area of the probe face down on a flat surface so that no light reaches the receptor area.

If the display shown at right appears in the liquid crystal display, perform zero calibration again.

```
OFFSET ERROR
PUSH 0-CAL KEY
```

- Even when "OFFSET ERROR" appears in the liquid crystal display, if light reaches the receptor area of the measuring probe, measured values will appear in the digital and analog displays. However, these values will not be accurate.

If any other display is shown, zero calibration was performed correctly.

Colour Adjustment

SETTING MEASUREMENT AREA

Measurement areas of ø25mm and ø50mm can be selected by extending or retracting the lens barrel. The ø25mm measurement area can be used for measuring LCDs with 2 - inch or greater diagonals: the ø50mm measurement area can be used for measuring LCDs with 4 - inch or greater diagonals.

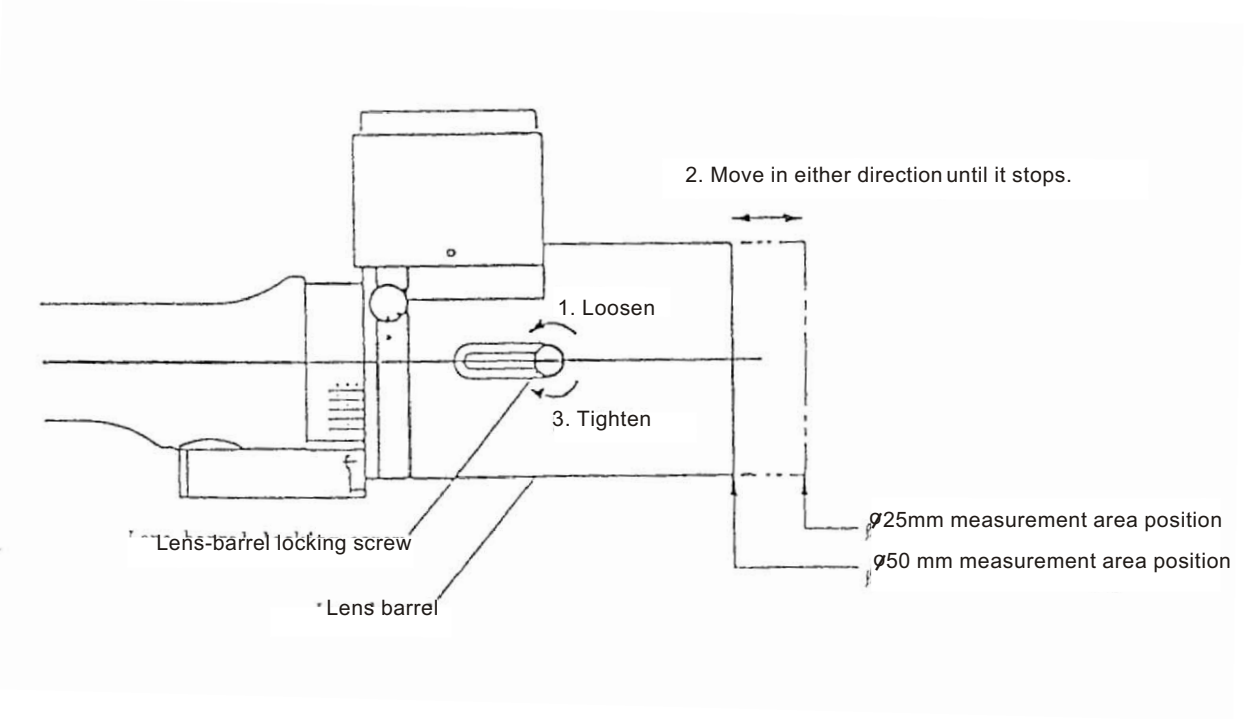
Set the measurement area :

Using a slotted screwdriver, loosen the lens - barrel locking screw.

Slide the lens barrel to the position corresponding to the desired measurement area. The lens barrel should be slid in the desired direction until it stops.
Extending the lens barrel fully sets the ø25mm measurement area: retracting the lens barrel fully sets the ø50mm measurement area.

Use the screwdriver to tighten the lens - barrel locking screw and lock the lens barrel in position.

Changing the measurement area also changes the measurement angle. this may result in differences between values measured with the ø25mm measurement area and those measured with the ø50mm measurement area to the viewing - angle characteristics of the LCD. For this reason. it is recommended that the measement area be constant for all measements.



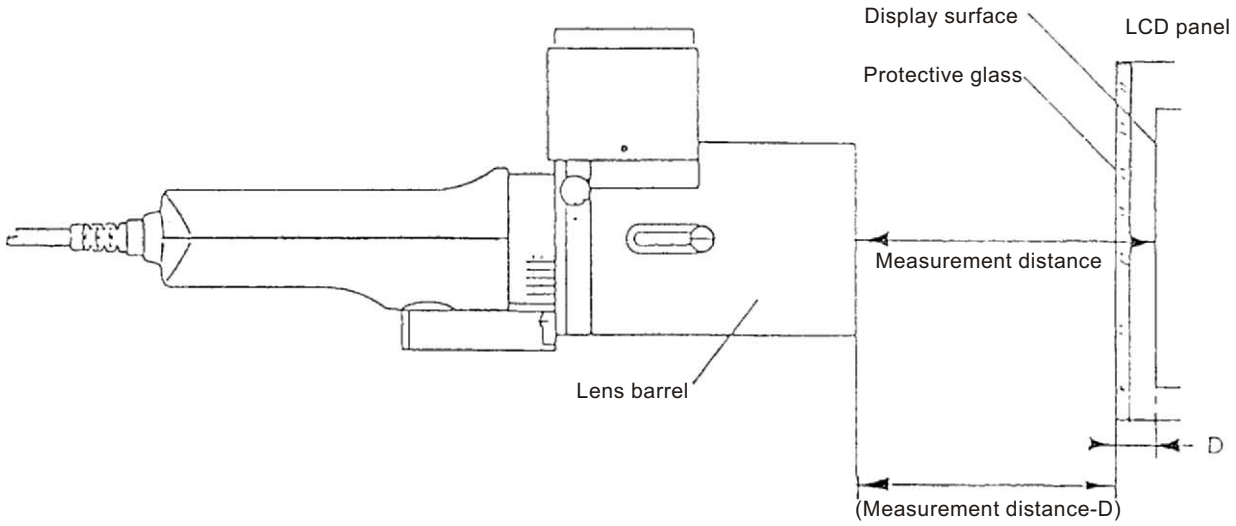
SETTING MEASUREMENT DISTANCE

The measurement distance (the distance from the front of the measuring probe's lens barrel to the display surface of the LCD) should be set using a ruler according to the procedure below.

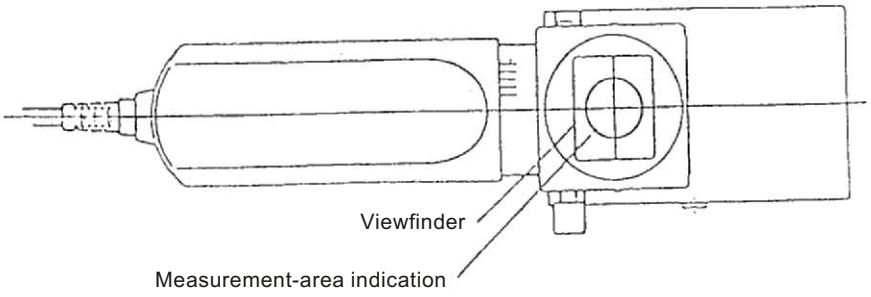
1. Mount the measuring probe on a tripod or other stand and mount the LCD on a suitable stand.
2. While using a ruler to measure the distance from the front of the measuring probe's lens barrel to the LCD's display surface, move the measuring probe or the LCD until the distance is the correct distance for the measurement area in use.

measurement area	ø 25mm	ø 50mm
measurement distance*	135mm+/-5mm	210mm+/-10mm

* Distance from the tip of the measuring probe's lens barrel to the LCD's display surface.



3. While looking through the viewfinder, move the measuring probe or LCD until the LCD section to be measured is inside the measurement-area indication in the viewfinder.



Colour Adjustment

White Balance Adjustment

Alignment procedure

1. Turn on 150P LCD monitor.
2. Turn on the Timing/Pattern generator. See Fig. 1
   Setting generator to provide CROSS-Hatch pattern at
   Resolution : 1024 x 768
   Timing : H= 48 KHz
   V= 60 Hz

3. Preset LCD colour Analyzer CA-110
   - Remove the lens protective cover of probe CA-A30.
   - Set Measuring/viewing selector to Measuring position for reset analyzer. (Zero calibration) as Fig. 2
   - Turn on the colour analyzer (CA-110).
   - Press 0-CAL button to starting reset analyzer. See Fig. 3

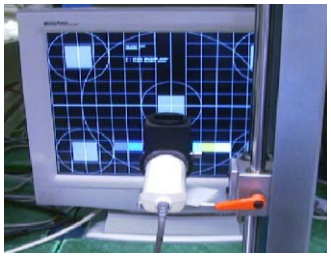


Fig. 1

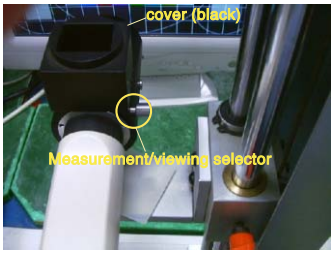
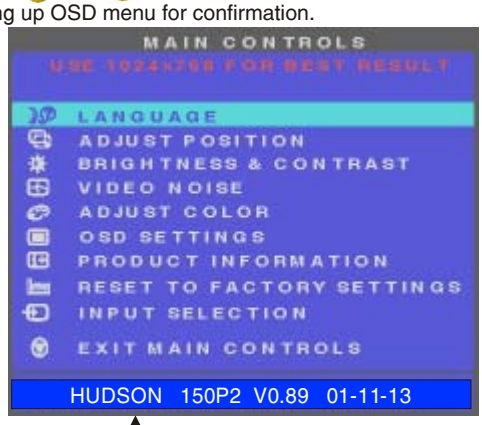


Fig. 2

Fig. 3

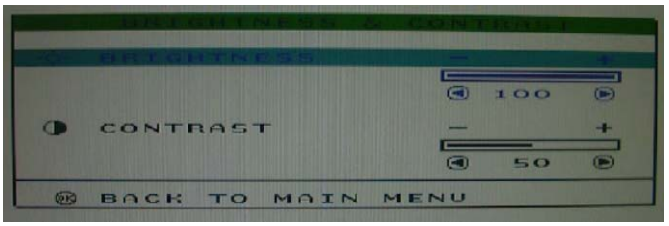
4. Entering factory adiustment mode of LCD Monitor.
   - To hold [OK] and [AUTO] buttons then power on the monitor. Press [OK] to bring up OSD menu for confirmation.



Factory mode

Note : after alignment, please reset OSD to users mode for normal operation. Otherwise, the monitor would not entering power saving mode and showing full white picture all the time as no video signal supplied. To leave factory mode by restart the monitor.

5. Adjust OSD menu to lower position of screen (i.e. adjust V-position to value 0 at submenu of OSD Setting.
6. Setting Brightness and Contrast
   - Adjust Brightness to value100.
   - Adjust Contrast to value 50.



7. Switch light probe to Viewing position.
8. Move the Lens barrel forward or backward to get clear image as shown in Fig. 4
9. Switch light probe to Measuring position. It should be able to indicate colour value on the CA-110.

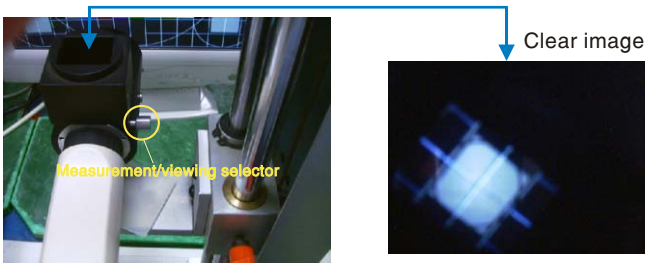
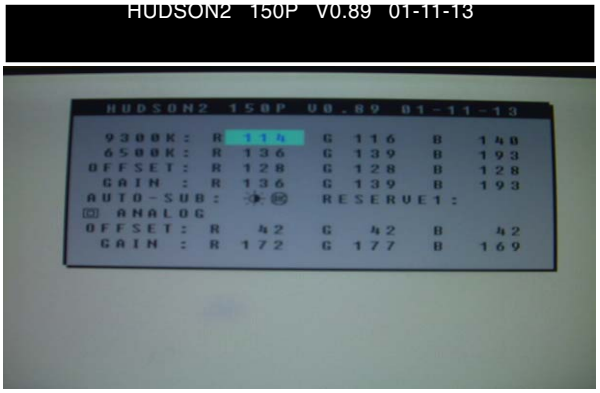


Fig. 4

10. Setting pattern to full white picture.
11. Press [OK] then select hudson150P v1.56D 01-03-09 by [▼] button.
12. Press [OK] to bring up submenu as following windows.



13. Press [▲] or [▼] buttons to select R G B. Increase/decrease value by press [◀] or [▶] buttons until the X, Y co-ordinates as below:

9300 K
x= 0.281±0.005
Y= 0.311±0.005
Y>= 200 nits
Fig. 5

6500°K
14. Setting X, Y value listed as below:

X= 0.312±0.005
Y= 0.338±0.005
Y>= 200 nits
Fig. 6

Alignment hits: 1. R for x value , G for y value, B for Y value on the colour analyzer.
2. If the colour analyzer has been calibrated and preset colour temperature in it. Please switch to correct setting in accordance with colour settings.

9300 K

Fig. 5

6500 K

Fig. 6

15. Gray scale checking
    - Switch Timing/pattern generator to
      Pattern: 32 gray scale
      Timing: 1024 X 768 60Hz 48KHz
    - Setting both Brightness and Contrast to 50 (Value).
    - Check black and white scale are visible clearly across the screen. See Fig. 7

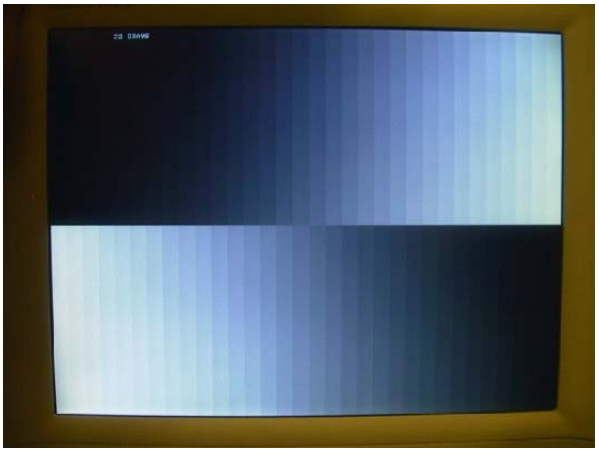


Fig. 7

Note: The bright scale will be saturated, if Y is too large. The dark scale will be invisible, if Y is too small. Re-alignment or review procedure again to correct this.

Repair Tips

Go to cover page

0. Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance. Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

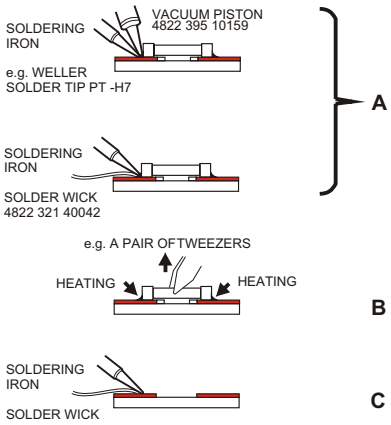
1.1 General cautions on handling and storage

- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1A)

Fig. 1 DISMOUNTING



- While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1 B).
- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1C).

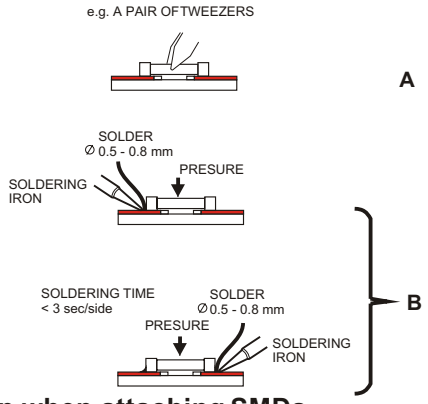
1.3 Caution on removal

- When handling the soldering.iron. use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- The chip, once removed, must never be reused.

1.4 Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig.2A).
- Next complete the soldering of the terminals of the component (see Fiq. 2B).

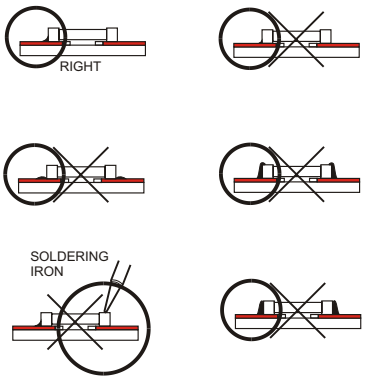
Fig. 2 MOUNTING



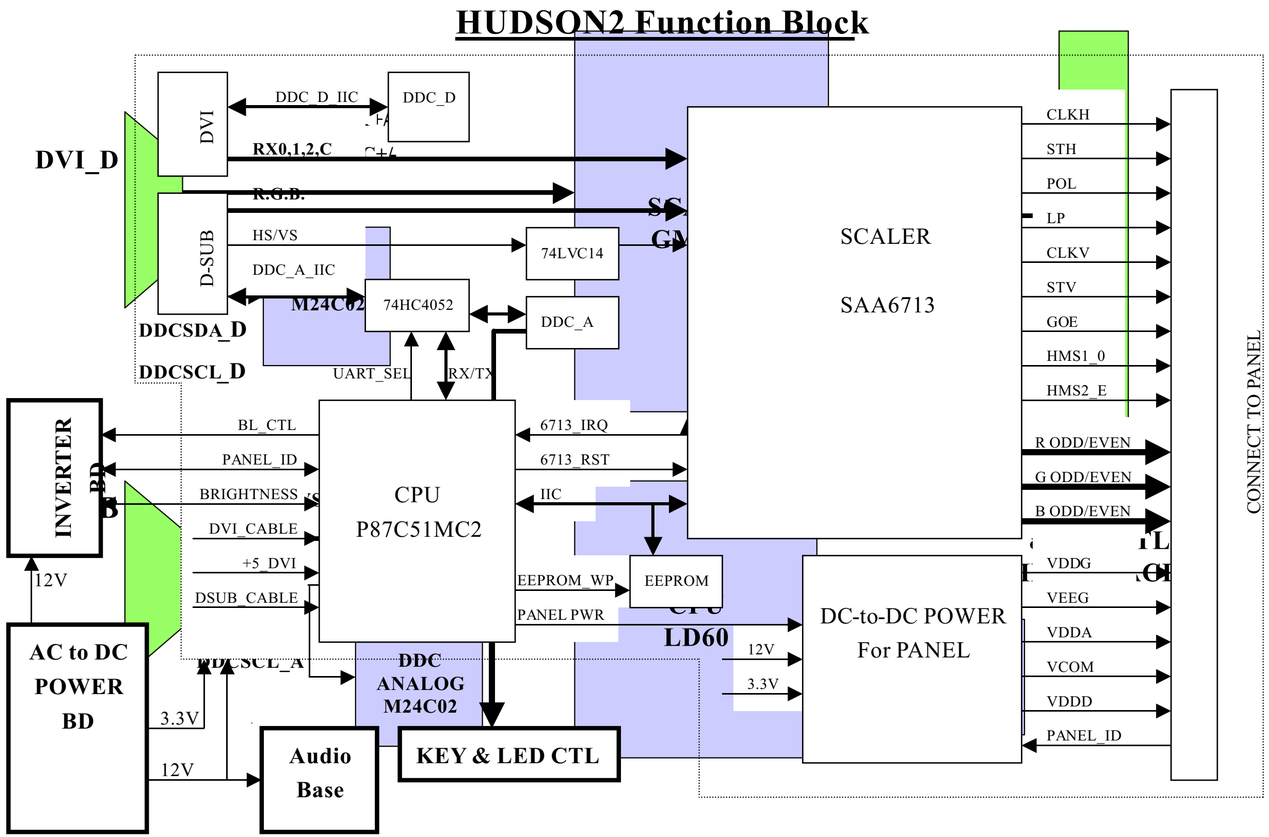
2. Caution when attaching SMDs

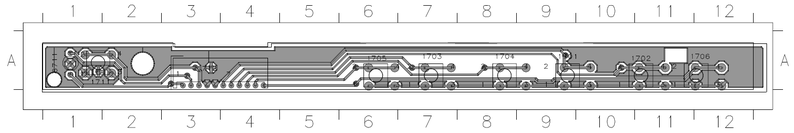
- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible, care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

Fig. 3 Examples

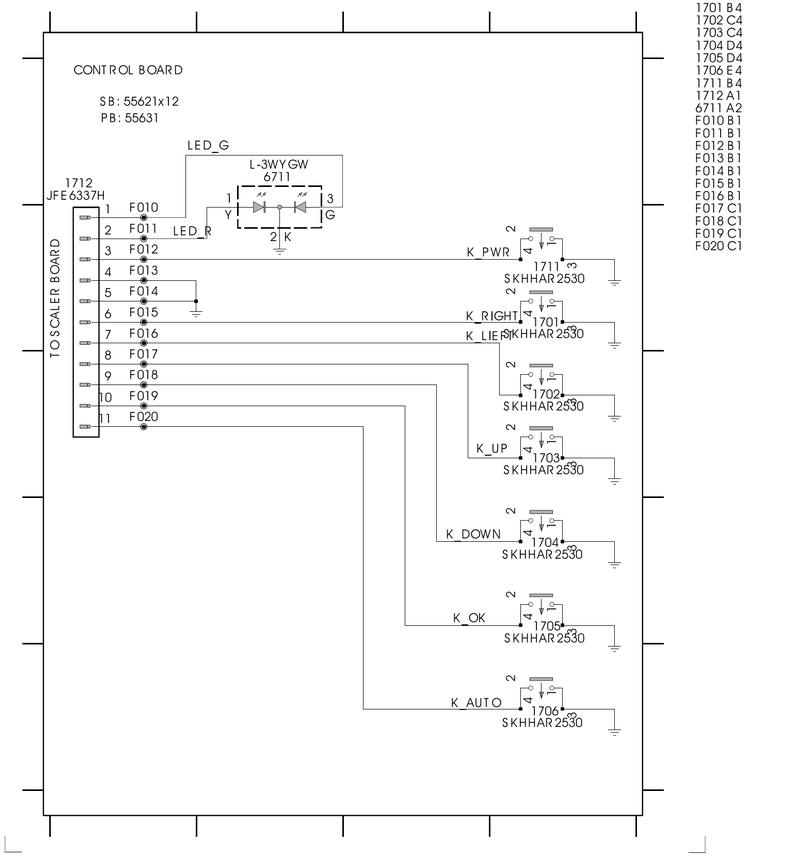


Block Diagram of ScalerBoard for HUDSON 150P

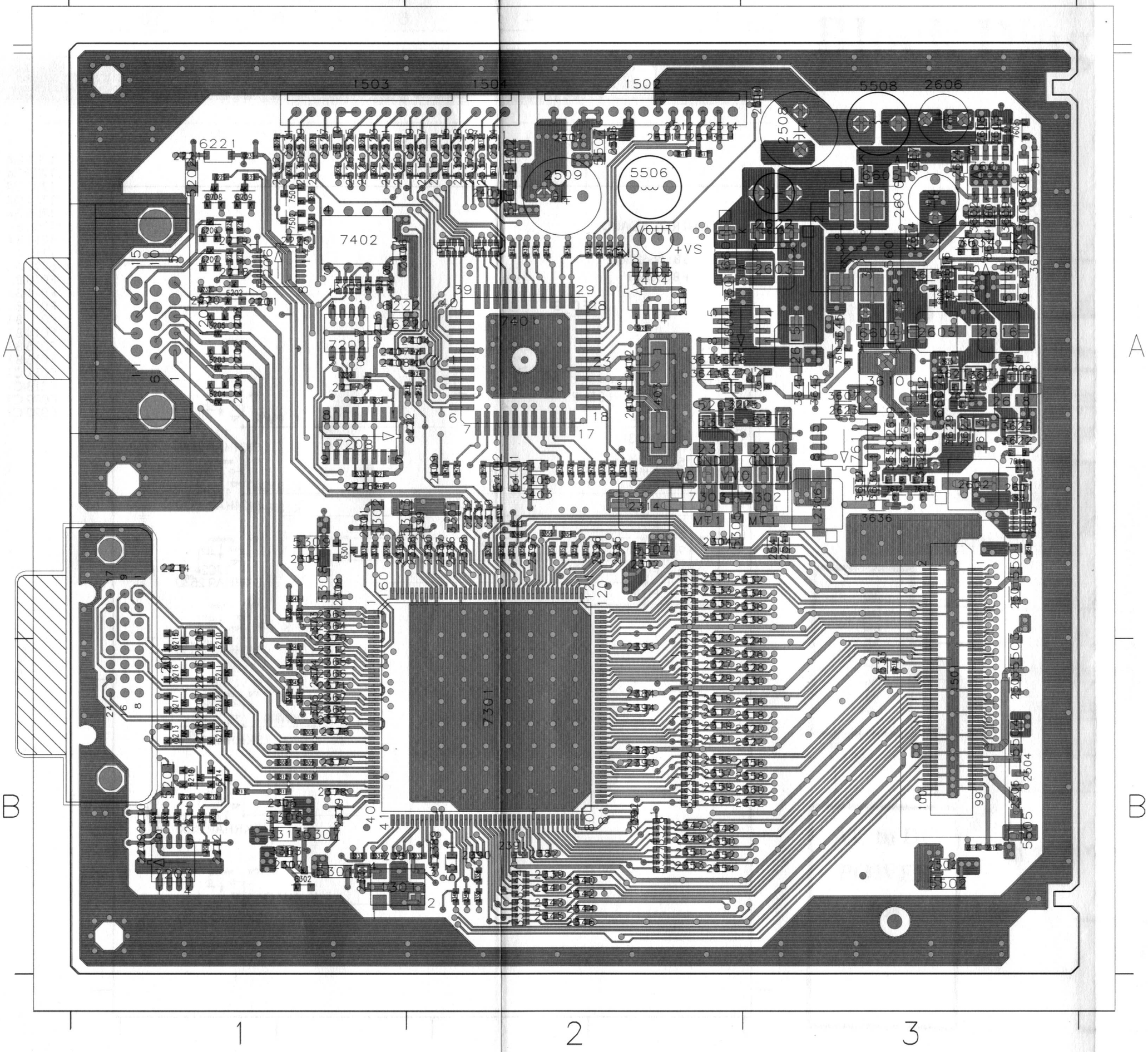




1701 B4
1702 C4
1703 C4
1704 D4
1705 D4
1706 E4
1711 B4
1712 A1
6711 A2
F010 B1
F011 B1
F012 B1
F013 B1
F014 B1
F015 B1
F016 B1
F017 C1
F018 C1
F019 C1
F020 C1



Scaler Board C.B.A.



# REF	GRID LABEL	BOARD SIDE
1301	B1	B
1403	A2	B
1501	B3	B
2201	A1	B
2202	A1	B
2203	A1	B
2204	A1	B
2205	B1	B
2206	B1	B
2207	B1	B
2208	B1	B
2209	B1	B
2210	B1	B
2211	B1	B
2212	B1	B
2214	A1	B
2215	A1	B
2216	A1	B
2217	A1	B
2218	A1	B
2219	A1	B
2220	A1	B
2221	A1	B
2222	A2	B
2225	A3	B
2226	A1	B
2231	A2	B
2232	A2	B
2301	A1	B
2302	A2	B
2303	A3	B
2304	A2	B
2305	B1	B
2306	A3	B
2307	B1	B
2308	A1	B
2309	A1	B
2310	A2	B
2311	B1	B
2312	B1	B
2313	A2	B
2314	A2	B
2315	B2	B
2316	B3	B
2317	B2	B
2318	B3	B
2319	B2	B
2320	B3	B
2321	B2	B
2322	B3	B
2323	A2	B
2324	B3	B
2325	B2	B
2326	B3	B
2327	B2	B
2328	B3	B
2329	B2	B
2330	B3	B
2331	A2	B
2332	A3	B
2333	A2	B
2334	A3	B
2335	A2	B
2336	A3	B
2337	A2	B

2321	B2	B	2321	B2	B	2321	B2	B	2321	B2	B	2321	B2	B	2321	B2	B	2375	B1	B
2322	B3	B	2322	B3	B	2322	B3	B	2322	B3	B	2322	B3	B	2322	B3	B	2376	B1	B
2323	A2	B	2323	A2	B	2323	A2	B	2323	A2	B	2323	A2	B	2323	A2	B	2377	B1	B
2324	B3	B	2324	B3	B	2324	B3	B	2324	B3	B	2324	B3	B	2324	B3	B	2378	B1	B
2325	B2	B	2325	B2	B	2325	B2	B	2325	B2	B	2325	B2	B	2325	B2	B	2379	B1	B
2326	B3	B	2326	B3	B	2326	B3	B	2326	B3	B	2326	B3	B	2326	B3	B	2380	A2	B
2327	B2	B	2327	B2	B	2327	B2	B	2327	B2	B	2327	B2	B	2327	B2	B	2381	B1	B
2328	B3	B	2328	B3	B	2328	B3	B	2328	B3	B	2328	B3	B	2328	B3	B	2382	B2	B
2329	B2	B	2329	B2	B	2329	B2	B	2329	B2	B	2329	B2	B	2329	B2	B	2383	B2	B
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2361	B2	B	2361	B2	B	2361	B2	B	2361	B2	B	2361	B2	B	2361	B2	B	2505	B3	B
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2363	A1	B	2363	A1	B	2363	A1	B	2363	A1	B	2363	A1	B	2363	A1	B	2507	A2	B
2364	A1	B	2364	A1	B	2364	A1	B	2364	A1	B	2364	A1	B	2364	A1	B	2510	A3	B
2365	B1	B	2365	B1	B	2365	B1	B	2365	B1	B	2365	B1	B	2365	B1	B	2511	A2	B
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2367	B1	B	2367	B1	B	2367	B1	B	2367	B1	B	2367	B1	B	2367	B1	B	2513	A2	B
2368	B1	B	2368	B1	B	2368	B1	B	2368	B1	B	2368	B1	B	2368	B1	B	2514	A2	B
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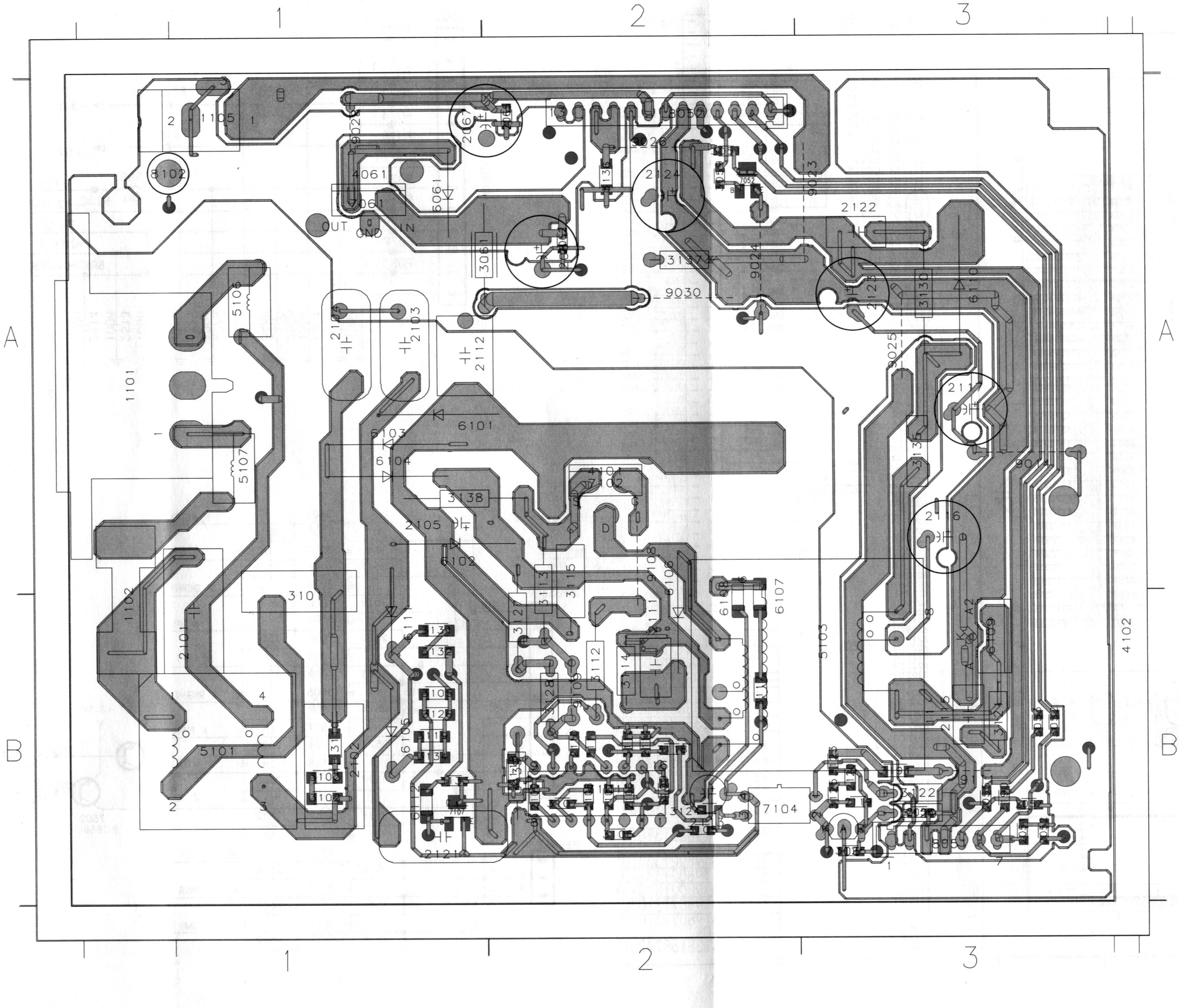
2370	A1	B	2370	A1	B	2370	A1	B	2370	A1	B	2370	A1	B	2370	A1	B	2516	A2	B
2371	B1	B	2371	B1	B	2371	B1	B	2371	B1	B	2371	B1	B	2371	B1	B	2517	A2	B
2372	B1	B	2372	B1	B	2372	B1	B	2372	B1	B	2372	B1	B	2372	B1	B	2518	A2	B
2373	A1	B	2373	A1	B	2373	A1	B	2373	A1	B	2373	A1	B	2373	A1	B	2519	A2	B
2374	B1	B	2374	B1	B	2374	B1	B	2374	B1	B	2374	B1	B	2374	B1	B	2520	A1	B
																		2521	A1	B
																		2522	A1	B
																		2523	A1	B
																		2524	A1	B
																		2525	A1	B
																		2526	A1	B
																		2527	A1	B
																		2528	A1	B
																		2529	A1	B
																		2530	A1	B
																		2531	A1	B
																		2532	A1	B
																		2533	B3	B
																		2534	A2	B

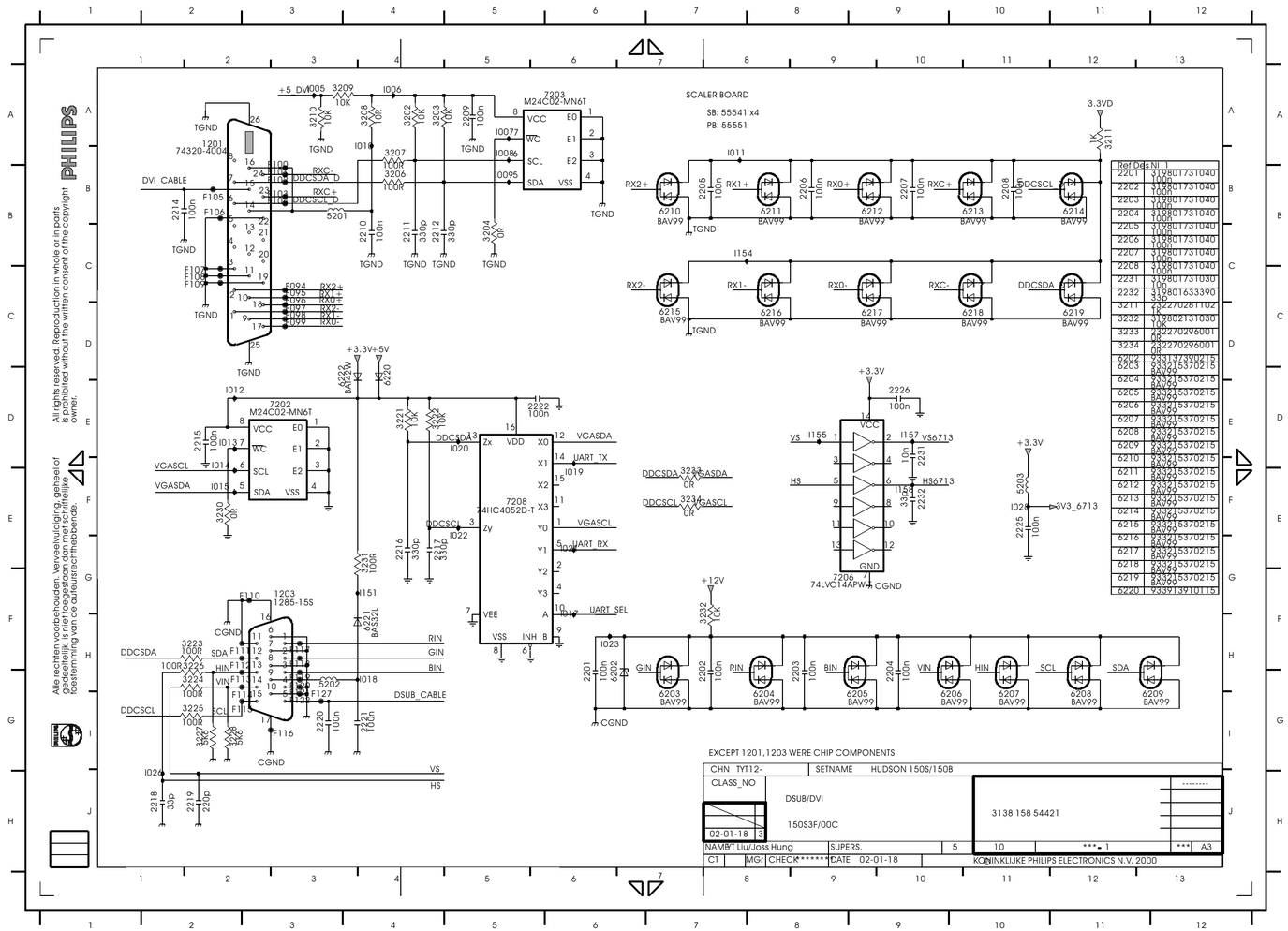
Power Board (C.B.A)



# REF	GRID LABEL	BOARD SIDE
1101	A1	B
1102	B1	B
1105	A1	B
2061	A2	B
2067	A1	B
2101	B1	B
2102	B1	B
2103	A1	B
2104	A1	B
2105	A1	B
2111	B2	B
2112	A1	B
2113	B2	B
2115	B3	B
2116	A3	B
2117	A3	B
2121	B1	B
2122	A3	B
2123	A3	B
2124	A2	B
3061	A2	B
3101	B1	B
3112	B2	B
3113	A2	B
3114	B2	B
3115	A2	B
3121	B3	B
3122	B3	B
3127	B2	B
3128	B2	B
3129	B3	B
3130	A3	B
3135	A3	B
3137	A2	B
3138	A1	B
3139	B2	B
4061	A1	B
4101	A2	B
4102	B3	B
5101	B1	B
5103	B3	B
5106	A1	B
5107	A1	B
6061	A1	B
6101	A1	B
6102	A1	B
6103	A1	B
6104	A1	B
6105	B1	B
6106	A2	B
6109	B3	B
6110	A3	B
6111	B1	B
7061	A1	B
7101	B2	B
7102	A2	B
7104	B2	B
7106	B3	B
8051	B3	B
8052	A2	B
8102	A1	B
9014	A3	B
9023	A3	B
9024	A2	B
9025	A3	B
9026	A2	B
9028	A1	B

# REF	GRID LABEL	BOARD SIDE
2051	B3	A
2052	B3	A
2056	B3	A
2057	B3	A
2062	A2	A
2065	A2	A
2106	B2	A
2107	B2	A
2108	B2	A
2109	B2	A
2110	B2	A
2114	B2	A
2118	B2	A
2119	B3	A
2120	B3	A
3051	A2	A
3052	B3	A
3053	B3	A
3056	B3	A
3059	A2	A
3102	B1	A
3103	B1	A
3105	B1	A
3106	B2	A
3107	B2	A
3108	B2	A
3109	B2	A
3110	B1	A
3111	B2	A
3116	B2	A
3117	B2	A
3118	B2	A
3119	B1	A
3120	B1	A
3123	B3	A
3124	B2	A
3125	B3	A
3126	B3	A

Schematic Diagram (Input DVI & D- SUB)


SCALER BOARD
SB: 55541 x4
PB: 55551
EXCEPT 1201,1203 WERE CHIP COMPONENTS.
CHN TYT12-
SETNAME HUDSON 150S/150B
CLASS_NO
DSUB/DVI
150S3F/00C
3138 158 54421
NAME Liu/Joss Hung
SUPERS.
CHECK
DATE 02-01-18
KONINKLIJKE PHILIPS ELECTRONICS N.V. 2000
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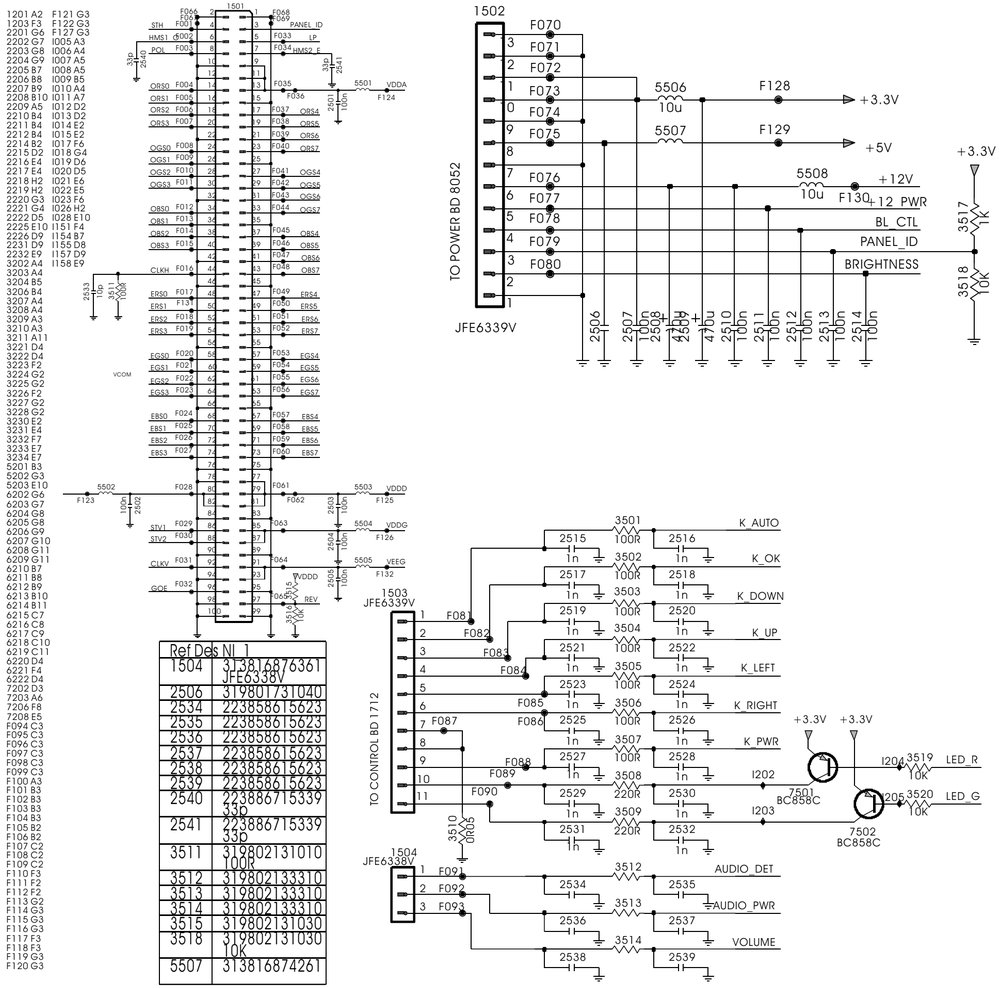
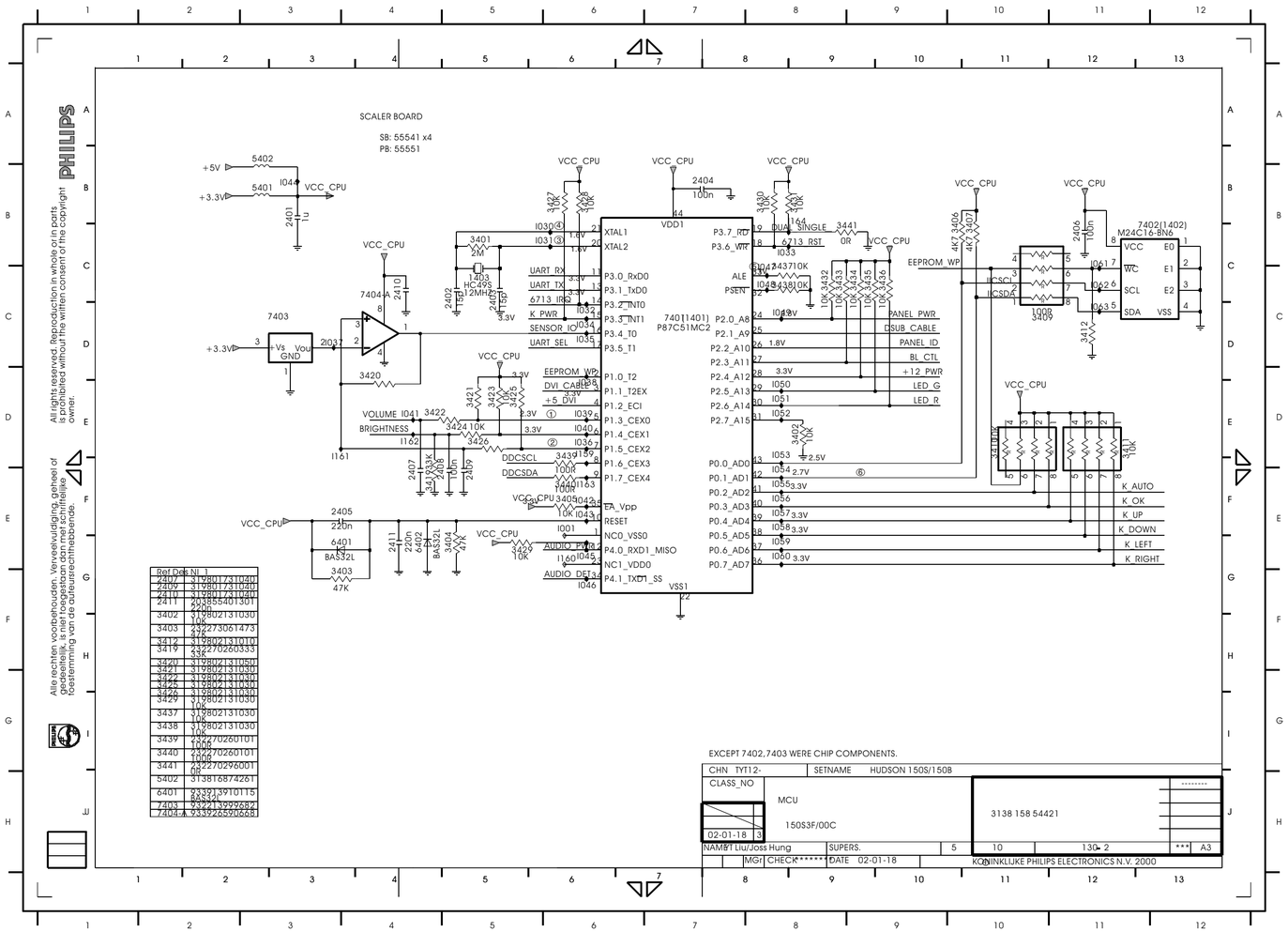
Connector Diagram



Ref Des	NI 1
1504	313816876361 JFE6338V
2506	3198017310400
2534	2238586156230
2535	2238586156230
2536	2238586156230
2537	2238586156230
2538	2238586156230
2539	2238586156230
2540	223886715339 33p
2541	223886715339 33p
3511	3198021310100 100R
3512	3198021333100
3513	3198021333100
3514	3198021333100
3515	3198021310300
3518	3198021310300 10K
5507	313816874261

Schematic diagram(MCU)



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Ref. Des.	NL	
2407	3139	131 10400
2409	3139	131 10400
2411	3139	131 10400
2411	2035	5540130 1 220n
3402	3139	021 31030 10K
3403	2322	730 61473 47K
3412	3139	021 31010 33K
3419	2322	702 60333 33K
3420	3139	021 31050
3421	3139	021 31030
3422	3139	021 31030
3425	3139	021 31030
3426	3139	021 31030
3429	3139	021 31030 10K
3437	3139	021 31030 10K
3438	3139	021 31030 10K
3439	2322	702 60101 100R
3440	2322	702 60101 100R
3441	2322	702 96001 0R
5402	3138	168 74261
6401	9332	913 10115 BAS32L
7403	9322	139 95682
7404-A	9339	255 90668

1403 C5
2401 B3
2402 C5
2403 C5
2404 B7
2405 E4
2406 B11
2407 E4
2408 E5
2409 E5
2410 C4
2411 E4
3401 B5
3402 D8
3403 F4
3404 E5
3405 E6
3406 B10
3407 B10
3409 C10
3410 D10
3411 D11
3412 C11
3419 E4
3420 D4
3421 D5
3422 D5
3423 D5
3424 D5
3425 D5
3426 D5
3427 B6
3428 B6
3429 E5
3430 B8
3431 B8
3432 C8
3433 C9
3434 C9
3435 C9
3436 C9
3437 C8
3438 C8
3439 D6
3440 E6
3441 B9
5401 B3
5402 B3
6401 E4
6402 E4
7401 D7
7402 C12
7403 C3
7404-A C4
I001 E6
I030 B6
I031 B6
I032 C6
I033 B8
I034 C6
I035 C6
I036 D6
I037 C3
I038 D6
I039 D6
I040 D6
I041 D4
I042 E6
I043 E6
I044 B3
I045 E6
I046 F6
I047 C8
I048 C8
I049 C8
I050 D8
I051 D8
I052 D8
I053 D8
I054 E8
I055 E8
I056 E8
I057 E8
I058 E8
I059 E8
I060 E8
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I063 C11
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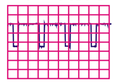
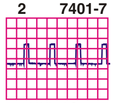
I162 D4
I163 E6
I164 B8

1 7401-5



1 V/div AC
50 uS/div

2 7401-7



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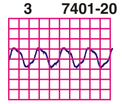
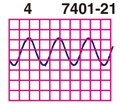
50 uS/div

3 7401-20



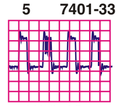
2 V/div AC
0.2 mS/div

4 7401-21



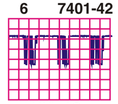
1 V/div AC
0.2 mS/div

5 7401-33



1 V/div AC
0.5 mS/div

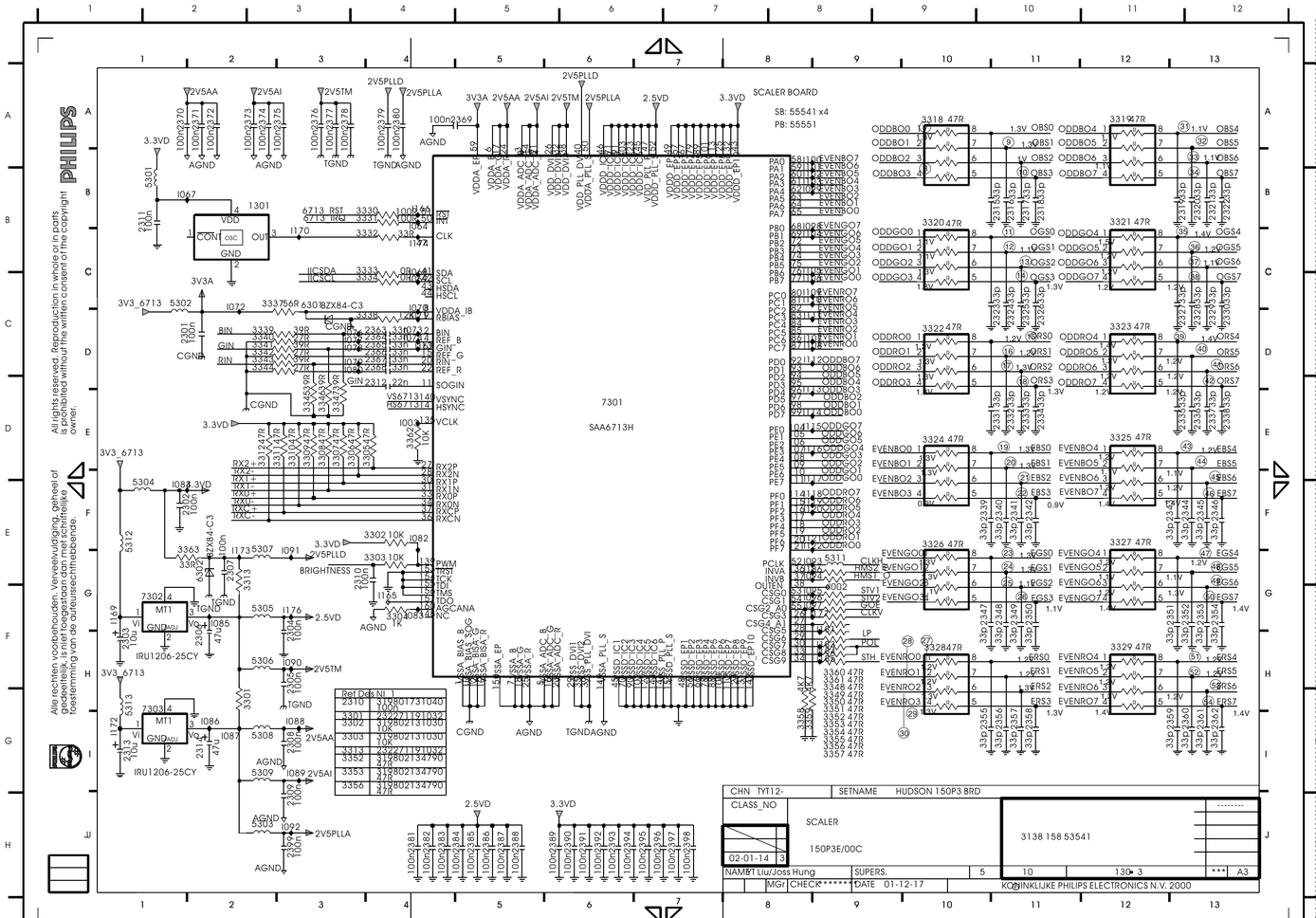
6 7401-42



1 V/div AC
0.5 mS/div

Go to cover page

Schematic diagram(Scaler)



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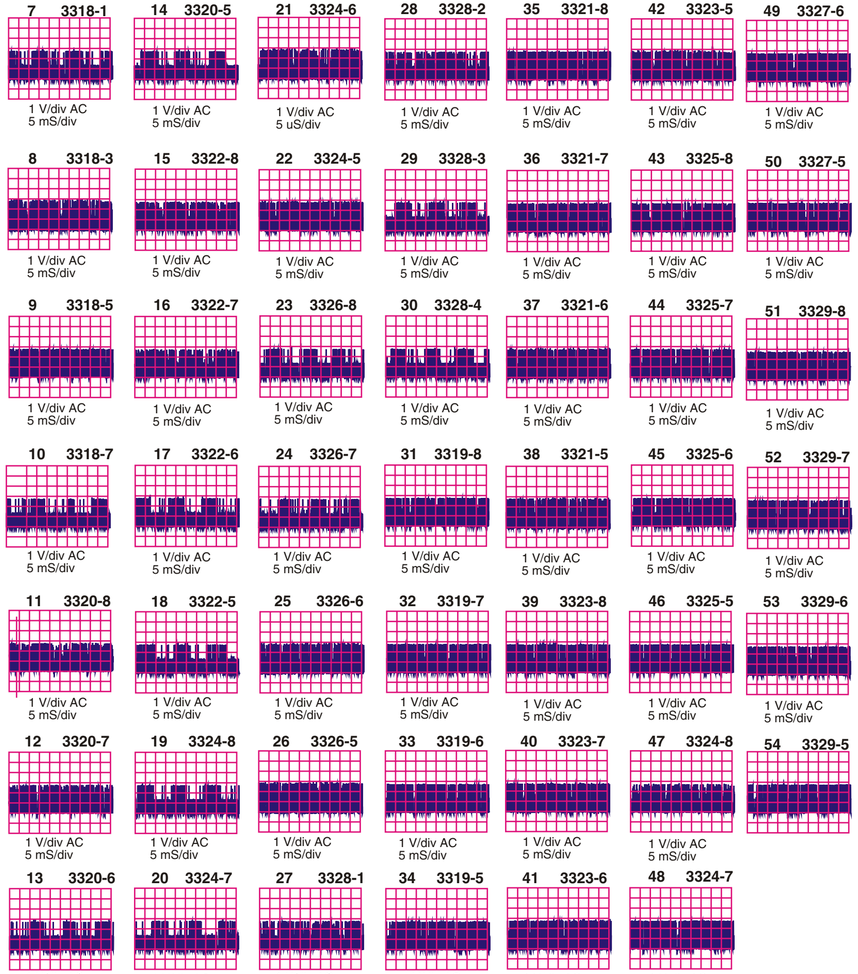
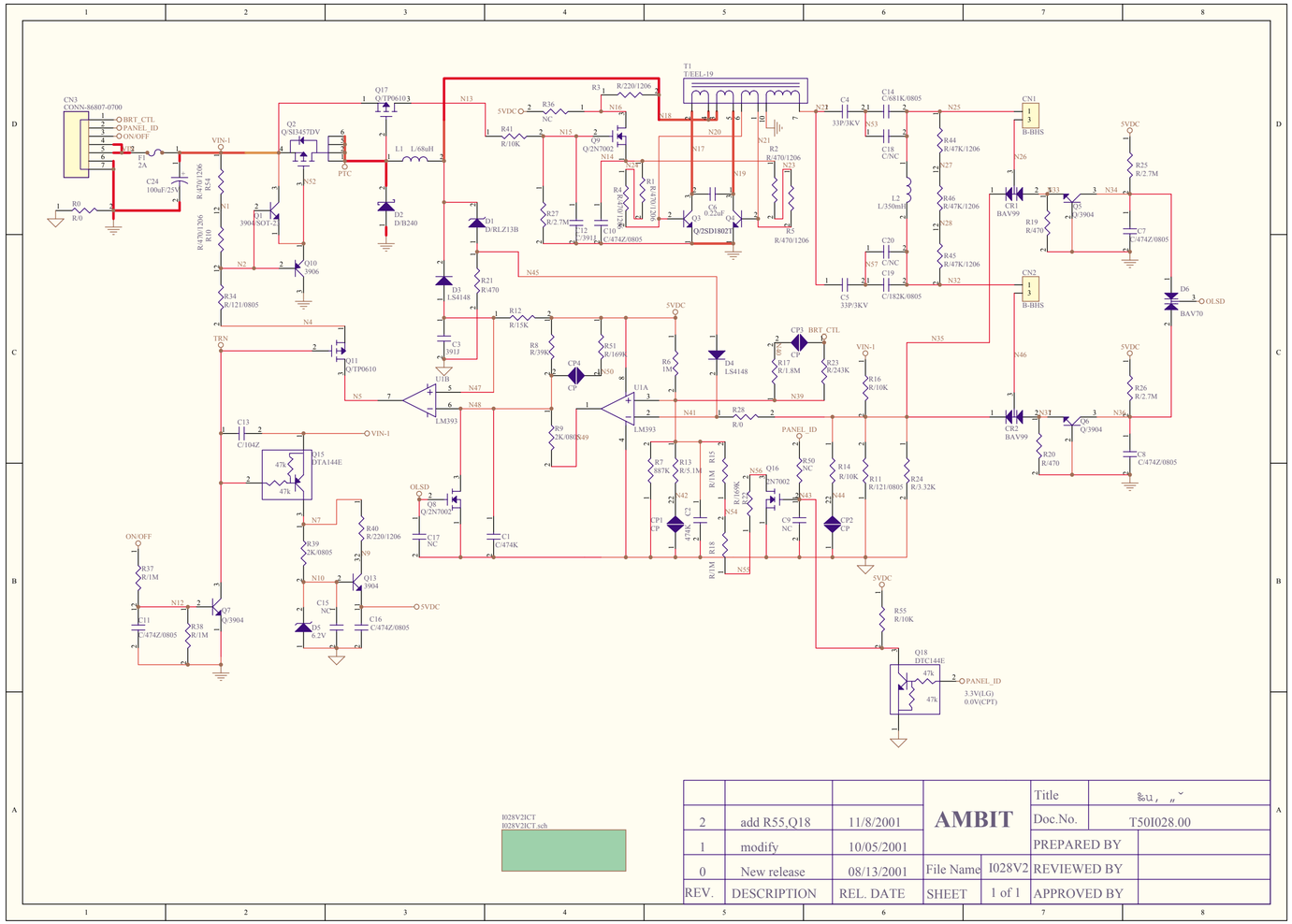
3352	3122771191032
3353	3122771191032
3356	3122771191032

1301 B3	3305 D4	I100 A8	
2301 C2	3306 D4	I101 B8	
2302 E2	3307 D3	I102 B8	
2303 F1	3308 D3	I103 B8	
2304 F3	3309 D3	I104 B8	
2305 F3	3310 D3	I105 C8	
2306 F2	3311 D3	I106 C8	
2307 E2	3312 D3	I107 C8	
2308 G3	3313 E2	I108 C8	
2309 H3	3318 A9	I109 C8	
2310 E4	3319 A11	I110 C8	
2311 B2	3320 B9	I111 C8	
2312 D4	3321 B11	I112 C8	
2313 G1	3322 C9	I113 D8	
2316 G2	3323 C11	I114 D8	
2315 B10	3324 D9	I115 D8	
2316 B10	3325 D11	I116 D8	
2317 B10	3326 E9	I117 E8	
2318 B10	3327 E11	I118 E8	
2319 B12	3328 F9	I119 E8	
2320 B12	3329 F11	I120 E8	
2321 B12	3330 B4	I121 E8	
2322 B12	3331 B4	I122 E8	
2323 C10	3332 B4	I165 F4	
2324 C10	3333 C4	I166 B4	
2325 C10	3334 C4	I167 C4	
2326 C10	3337 C3	I169 F1	
2327 C12	3338 C4	I170 B3	
2328 C12	3339 C3	I172 G1	
2329 C12	3340 C3	I173 E2	
2330 C12	3341 C3	I174 B4	
2331 D10	3342 C3	I176 F3	
2332 D10	3343 C3	I177 F8	
2333 D10	3344 C3	I181 F8	
2334 D10	3345 D3	I183 F8	
2335 D12	3346 D3	I184 F8	
2336 D12	3347 D3	I185 F8	
2337 D12	3348 G8	I186 E8	
2338 D12	3349 G8		
2339 E10	3350 G8		
2340 E10	3351 G8		
2341 E10	3352 G8		
2342 E10	3353 G8		
2343 E11	3354 G8		
2344 E12	3355 G8		
2345 E12	3356 G8		
2346 E12	3357 G8		
2347 F10	3358 G8		
2348 F10	3359 G8		
2349 F10	3360 F8		
2350 F10	3361 F8		
2351 F11	3362 D4		
2352 F12	3363 E2		
2353 F12	5301 B2		
2354 F12	5302 C2		
2355 G10	5303 H3		
2356 G10	5304 E2		
2357 G10	5305 F3		
2358 G10	5306 F3		
2359 G11	5307 E3		
2360 G12	5308 G3		
2361 G12	5309 G3		
2362 G12	5311 E8		
2363 C4	5312 E1		
2364 C4	5313 G1		
2365 C4	6301 C3		
2366 C4	6302 E2		
2367 C4	7301 D6		
2368 C4	7302 F2		
2369 A5	7303 G2		
2370 A2	I002 F8		
2371 A2	I003 D4		
2372 A2	I064 B4		
2373 A2	I067 B2		
2374 A3	I068 C4		
2375 A3	I069 C4		
2376 A3	I070 C4		
2377 A3	I071 C4		
2378 A3	I072 C2		
2379 A4	I073 C4		
2380 A4	I074 C4		
2381 H4	I076 C4		
2382 H4	I077 C4		
2383 H4	I078 C4		
2384 H4	I079 C4		
2385 H5	I080 C4		
2386 H5	I082 E4		
2387 H5	I083 F4		
2388 H5	I084 E2		
2389 H5	I085 F2		
2390 H6	I086 G2		
2391 H6	I087 G2		
2392 H6	I088 G3		
2393 H6	I089 G3		
2394 H6	I090 F3		
2395 H6	I091 E3		
2396 H6	I092 H3		
2397 H7	I093 E8		
2398 H7	I094 E8		
2399 H3	I095 F8		
3301 G2	I096 F8		
3302 E4	I097 F8		
3303 E4	I098 B8		
3304 F4	I099 B8		



Inverter Diagram



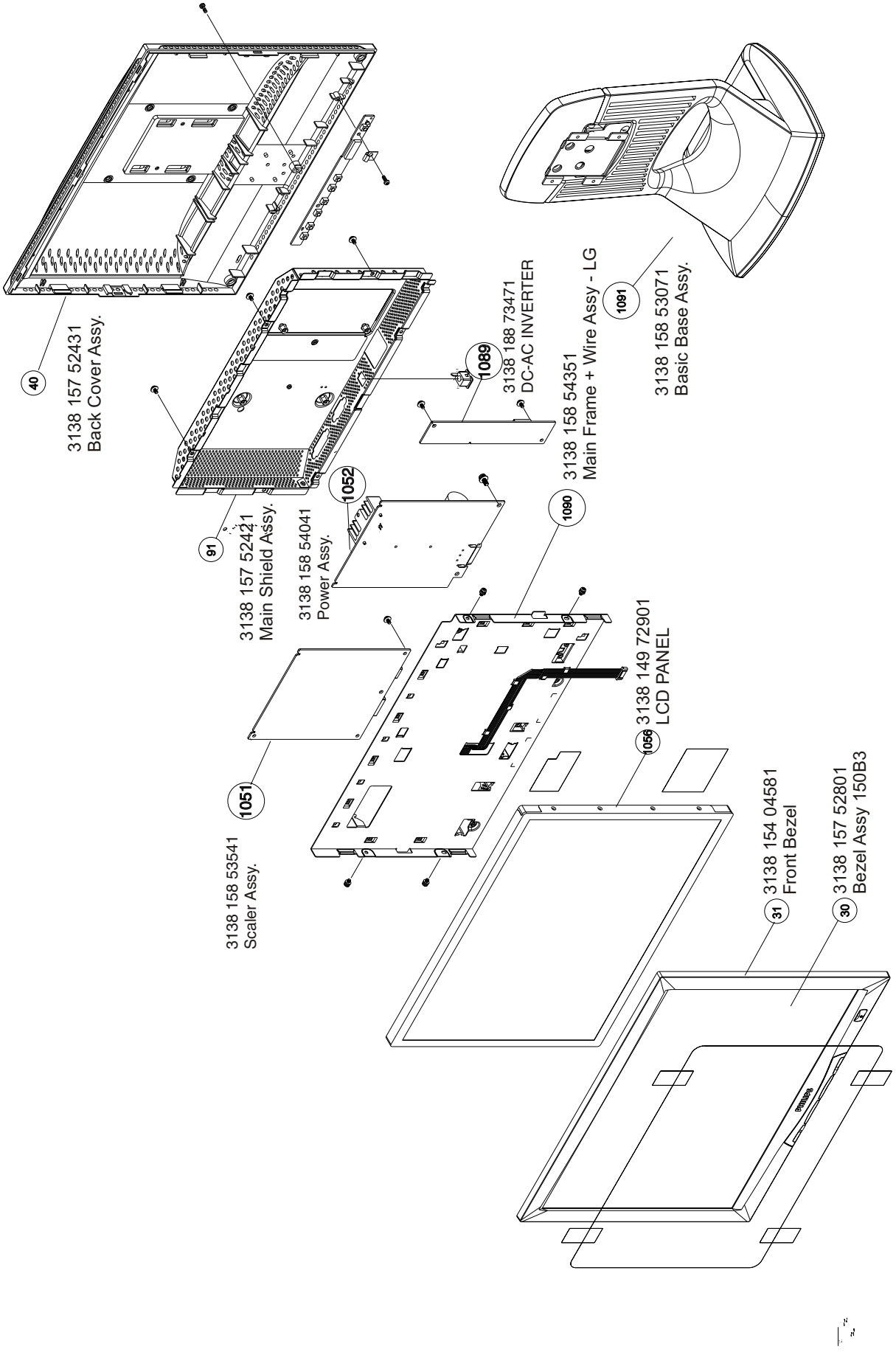
Recommended Parts List for inverter board

Recommended parts list of Inverter board :(T501028.00, Ambit)

Pos.	Service code	Description	supplier code
1075	3138 188 73471	DC-AC INVERTER (T501028.00, Ambit)	
L1	9965 000 12389	COIL A00-0501 DIP(AXIS)	21.0043.10
F1	9965 000 12390	FUSE KE20 1206(DAITO)	26.7040.12
L2	9965 000 12391	IND SPC-1005P-354-SMD(TMP)	16.0490.01
Q18	9965 000 08856	TR NPN DTC144EUA UMT3 (ROHM)	06.0087.01
Q8	4822 130 11057	2N7002	06.0602.01
Q9	4822 130 11057	2N7002	06.0602.01
Q16	4822 130 11057	2N7002	06.0602.01
Q3	9965 000 06331	TR NPN 2SD1802T-TL DPAK/SANYO	06.0648.01
Q1	9965 000 08855	TR NPN MMBT3904LT1 SOT23(MOTOROL	06.0038.01
Q10	9965 000 12392	TR PNP MMBT3906LT1 SOT23(MOTOROL	06.0039.01
Q15	9965 000 12393	TR PNP DTA144EKA/T146(ROHM)	06.0033.03
Q2	9965 000 05480	SI3457DV	06.6031.01
Q11	9965 000 12394	PFET TP0610T SOT23(SILICONIX)	06.0501.01
Q17	9965 000 12394	PFET TP0610T SOT23(SILICONIX)	06.0501.01
U1	9965 000 12328	IC COMP LM393M SO8(NS)	04.0004.01
T1	9965 000 12395	XFMR SIT08133-1935 V:1(TMP)	22.0518.11
T2	9965 000 12395	XFMR SIT08133-1935 V:1(TMP)	22.0518.11

Exploded View

Exploded View 150B3B/ 00C



Model: 150B3B/00C

30	313815752801	BEZEL ASSY-150B3(T)
31	313815404581	BEZEL (T ABS-HB)
32	313815406161	BUTTON-POWER (T)
40	313815752431	BACK COVER ASSY-DUAL (T)
450	313815632071	CARTON-150B3B
451	313815632231	CUSHION-R-150B3B
452	313815632241	CUSHION-L-150B3B
453	313815620612	P.E. BAG-ANTI-STAT.
601	313811704001	E-D.F.U ASSY (150B3B)
1087	313816874231	MAINSCORD
1091	313815853071	Basic Base + Wire Assy
1089	823827711511	`DC-AC INVERTER (T50I028.)
1051	313815854421	SCALER ASSY
1052	313815854041	POWER ASSY
1053	313815853561	CONTROL ASSY
1102	242208600266	FUSE 5X20 HT 2A 250V IEC B
6109	932214337687	DIO REC FCH20A15 (NIEC) L
7101	932213028682	IC L5991 (ST) L
7102	932215101687	FET POW STP6NC60FP (ST) L
7104	932214014667	OPT CP TCET1103(G) (VISH) L
7106	933771100686	IC TL431CLP S (MOTA) R
7301	935270681557	SCALER IC SAA6713H
7302	932218206685	IC SM IRU1206-25CY (INR0) R
7303	932218206685	IC SM IRU1206-25CY (INR0) R

Model: 150P3A/00C

Recommended parts list of Inverter board :(T501028.00, Ambit)

Pos.	Service code	Description	supplier code
1075	3138 188 73471	DC-AC INVERTER (T501028.00, Ambit)	
L1	9965 000 12389	COIL A00-0501 DIP(AXIS)	21.0043.10
F1	9965 000 12390	FUSE KE20 1206(DAITO)	26.7040.12
L2	9965 000 12391	IND SPC-1005P-354-SMD(TMP)	16.0490.01
Q18	9965 000 08856	TR NPN DTC144EUA UMT3 (ROHM)	06.0087.01
Q8	4822 130 11057	2N7002	06.0602.01
Q9	4822 130 11057	2N7002	06.0602.01
Q16	4822 130 11057	2N7002	06.0602.01
Q3	9965 000 06331	TR NPN 2SD1802T-TL DPAK/SANYO	06.0648.01
Q1	9965 000 08855	TR NPN MMBT3904LT1 SOT23(MOTOROL	06.0038.01
Q10	9965 000 12392	TR PNP MMBT3906LT1 SOT23(MOTOROL	06.0039.01
Q15	9965 000 12393	TR PNP DTA144EKA/T146(ROHM)	06.0033.03
Q2	9965 000 05480	SI3457DV	06.6031.01
Q11	9965 000 12394	PFET TP0610T SOT23(SILICONIX)	06.0501.01
Q17	9965 000 12394	PFET TP0610T SOT23(SILICONIX)	06.0501.01
U1	9965 000 12328	IC COMP LM393M SO8(NS)	04.0004.01
T1	9965 000 12395	XFMR SIT08133-1935 V:1(TMP)	22.0518.11
T2	9965 000 12395	XFMR SIT08133-1935 V:1(TMP)	22.0518.11

CTV :150B3B/00C

30	313815752801	BEZEL ASSY-150B3(T)
31	313815404581	BEZEL(T ABS-HB)
32	313815406161	BUTTON-POWER(T)
33	313815406141	BUTTON-CONTROL(T)
40	313815752431	BACK COVER ASSY-ANALOG(T)
41	313815404591	BACK COVER(T ABS-HB)
51	313815403071	BASIC BASE (CHEIL-HR1360.L
98	313815550733	PLASTIC COVER
129	313810632613	PE BAG
140	313800990021	PROCESS BOX
141	313815521011	QUICK SETUP GUIDE(150B3B)
142	313815520595	MANUAL - USING YOUR MONITOR
1051	313815854421	SCALER ASSY
1052	313815854041	POWER ASSY
1053	313815853561	CONTROL ASSY
1085	823827711261	TFT-LCD MOD LS150X03-A3
1086	823827711591	FPC 1P/70/80P 0.635
1087	313816874231	MAINSCORD
1088	313818872731	CORD SUB-D 15/1M8/15 SUB-D M/M
1089	823827711511	DC-AC INVERTER(T50I028.)
1090	313815854351	MAIN FRAME+WIRE ASSY-LG
1091	313815853071	BASIC BASE + WIRE ASSY
1102	242208600266	FUSE 5X20 HT 2A 250V IEC B
1105	243803100404	CON BM SUPP H 1P F 16V 3A B
1401	823827711091	SOC IC 44P 1.27 PLCC
1402	243803100146	SOC IC V 8P F 2.54 DIL B

Various

450	313815632071	CARTON -150B3B
451	313815632231	CUSHION-R-150B3B
452	313815632241	CUSHION-L-150B3B
453	313815620612	P.E. BAG-ANTI-STAT.
601	313811704001	E-D.F.U ASSY(150B3B)
1052	313815854041	POWER ASSY

2051	223891015649	CER2 0805 X7R 25V 1N PM10 R
2052	223891015649	CER2 0805 X7R 25V 1N PM10 R
2056	223891015649	CER2 0805 X7R 25V 1N PM10 R
2057	223891015649	CER2 0805 X7R 25V 1N PM10 R
2101	203831000015	CAP MPP 275V S 220N PM10 B
2102	203831000015	CAP MPP 275V S 220N PM10 B
2103	202055490139	CERSAF NSB 250V S 4N7 PM20 B
2104	202055490139	CERSAF NSB 250V S 4N7 PM20 B
2105	202203100077	ELCAP KM 450V S 82U PM20
2106	223886115152	CER1 0805 NP0 50V 1N5 PM5 R
2107	223891015649	CER2 0805 X7R 25V 1N PM10 R
2108	223858016623	CER2 0805 X7R 50V 4N7 PM10 R
2109	203855401206	CER2 0805 X7R 50V 27N PM10 R
2110	223886115221	CER1 0805 NP0 50V 220P PM5 R
2111	225260108026	CER2 DC X7R 1KV S 1N PM10 A
2112	202055490158	CERSAF CD 250V S 2N2 PM20 B
2113	203803513506	ELCAP RGA 50V S 22U PM20 A
2114	223886115152	CER1 0805 NP0 50V 1N5 PM5 R
2115	225260108026	CER2 DC X7R 1KV S 1N PM10 A
2116	202203100053	ELCAP GL 25V S 470U PM20 A
2117	202203100053	ELCAP GL 25V S 470U PM20 A
2118	823827711631	CER2 SM Y5V 50V 1U PM8020
2119	223886115399	CER1 0805 NP0 50V 39P PM5 R
2120	223858016623	CER2 0805 X7R 50V 4N7 PM10 R
2122	225260108026	CER2 DC X7R 1KV S 1N PM10 A
2123	202203100053	ELCAP GL 25V S 470U PM20 A
2124	202203100053	ELCAP GL 25V S 470U PM20 A
2209	223878615649	CER2 0603 X7R 16V 1N PM10 R
2210	223878615649	CER2 0603 X7R 16V 1N PM10 R
2211	223886715331	CER1 0603 NP0 50V 330P PM5 R
2212	223886715331	CER1 0603 NP0 50V 330P PM5 R
2214	223878615649	CER2 0603 X7R 16V 1N PM10 R
2215	223878615649	CER2 0603 X7R 16V 1N PM10 R
2216	223886715331	CER1 0603 NP0 50V 330P PM5 R
2217	223886715331	CER1 0603 NP0 50V 330P PM5 R
2218	223886715339	CER1 0603 NP0 50V 33P PM5 R
2219	223886715221	CER1 0603 NP0 50V 220P PM5 R
2220	223878615649	CER2 0603 X7R 16V 1N PM10 R
2221	223878615649	CER2 0603 X7R 16V 1N PM10 R
2222	223878615649	CER2 0603 X7R 16V 1N PM10 R
2225	223878615649	CER2 0603 X7R 16V 1N PM10 R
2226	223878615649	CER2 0603 X7R 16V 1N PM10 R
2401	222278019763	CER2 0805 Y5V 16V 1U PM20 R
2402	223886715159	CER1 0603 NP0 50V 15P PM5 R
2403	223886715159	CER1 0603 NP0 50V 15P PM5 R
2404	223878615649	CER2 0603 X7R 16V 1N PM10 R
2405	223858019814	CER2 0805 Y5V 50V 220N P8020 R
2406	223878615649	CER2 0603 X7R 16V 1N PM10 R
2408	223878615649	CER2 0603 X7R 16V 1N PM10 R
2501	222258015649	CER2 0805 X7R 50V 1N PM10 R
2502	222258015649	CER2 0805 X7R 50V 1N PM10 R
2503	222258015649	CER2 0805 X7R 50V 1N PM10 R
2504	222258015649	CER2 0805 X7R 50V 1N PM10 R
2505	222258015649	CER2 0805 X7R 50V 1N PM10 R
2507	223878615649	CER2 0603 X7R 16V 1N PM10 R
2508	202203100068	ELCAP GL 25V S 470U PM20 B
2509	202203100068	ELCAP GL 25V S 470U PM20 B
2510	223878615649	CER2 0603 X7R 16V 1N PM10 R
2511	223878615649	CER2 0603 X7R 16V 1N PM10 R
2512	223878615649	CER2 0603 X7R 16V 1N PM10 R
2513	223878615649	CER2 0603 X7R 16V 1N PM10 R
2514	223878615649	CER2 0603 X7R 16V 1N PM10 R
2515	223858615623	CER2 0603 X7R 50V 1N PM10 R
2516	223858615623	CER2 0603 X7R 50V 1N PM10 R
2517	223858615623	CER2 0603 X7R 50V 1N PM10 R
2518	223858615623	CER2 0603 X7R 50V 1N PM10 R
2519	223858615623	CER2 0603 X7R 50V 1N PM10 R
2520	223858615623	CER2 0603 X7R 50V 1N PM10 R
2521	223858615623	CER2 0603 X7R 50V 1N PM10 R
2522	223858615623	CER2 0603 X7R 50V 1N PM10 R
2523	223858615623	CER2 0603 X7R 50V 1N PM10 R
2524	223858615623	CER2 0603 X7R 50V 1N PM10 R
2525	223858615623	CER2 0603 X7R 50V 1N PM10 R
2526	223858615623	CER2 0603 X7R 50V 1N PM10 R
2527	223858615623	CER2 0603 X7R 50V 1N PM10 R
2528	223858615623	CER2 0603 X7R 50V 1N PM10 R
2529	223858615623	CER2 0603 X7R 50V 1N PM10 R
2530	223858615623	CER2 0603 X7R 50V 1N PM10 R
2531	223858615623	CER2 0603 X7R 50V 1N PM10 R
2532	223858615623	CER2 0603 X7R 50V 1N PM10 R
2533	223886715109	CER1 0603 NP0 50V 10P PM5 R
2601	223858615636	CER2 0603 X7R 50V 10N PM10 R
2602	202001293723	ELCAP SM RV2 16V 47U PM20 R
2603	202001293778	ELCAP SM RV2 35V 10U PM20 R
2604	223886115109	CER1 0805 NP0 50V 10P PM5 R
2605	202001293778	ELCAP SM RV2 35V 10U PM20 R
2606	203803434101	ELCAP 1UF 25V
2608	222278019763	CER2 0805 Y5V 16V 1U PM20 R
2610	202000190076	ELCAP SA 20V S 33U PM20 A
2611	222291016647	CER2 0805 X7R 25V 68N PM10 R
2613	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2614	223891015649	CER2 0805 X7R 25V 1N PM10 R
2615	202001293778	ELCAP SM RV2 35V 10U PM20 R
2616	202001293778	ELCAP SM RV2 35V 10U PM20 R
2618	202002490534	ELCAP SM WX 50V 2U2 PM20 R
2622	203800650001	ELCAP BP NP 25V S 10U PM20 A
2623	223891015649	CER2 0805 X7R 25V 1N PM10 R

3051	319802151030	RST SM 0805 10K PM5 COL R
3052	319802151010	RST SM 0805 1R PM5 COL R
3053	319802151010	RST SM 0805 1R PM5 COL R
3056	319802151010	RST SM 0805 1R PM5 COL R
3059	319802151030	RST SM 0805 10K PM5 COL R
3101	212261200061	NTC DC SCK-164 S 16R PM15 B
3102	232271161274	RST SM 1206 RC01 270K PM5 R
3103	232271161274	RST SM 1206 RC01 270K PM5 R
3105	232271161184	RST SM 1206 RC01 180K PM5 R
3106	232273462703	RST SM 0805 RC12H 27K PM1 R
3107	319802151030	RST SM 0805 10K PM5 COL R
3108	319802151030	RST SM 0805 10K PM5 COL R
3109	319802151030	RST SM 0805 10K PM5 COL R
3110	232271161274	RST SM 1206 RC01 270K PM5 R
3112	213811613309	RST MFLM MFR-5S A 33R PM1 A
3113	213811611302	RST MFLM MFR-5S A 1K3 PM1 A
3114	213811612204	RST MFLM MFR-5S A 220K PM1 A
3115	212010590722	RST MOX 1W RSS A 1R PM5 A
3116	232273462702	RST SM 0805 RC12H 2K7 PM1 R
3117	232271161109	RST SM 1206 RC01 10R PM5 R
3118	232273461503	RST SM 0805 RC12H 15K PM1 R
3119	232271161184	RST SM 1206 RC01 180K PM5 R
3120	232271161184	RST SM 1206 RC01 180K PM5 R
3121	213811611009	RST MFLM MFR-5S A 10R PM1 A
3122	213811611002	RST MFLM MFR-5S A 1K PM1 A
3123	232273061911	RST SM 0805 RC11 910R PM5 R
3124	319802151020	RST SM 0805 1K PM5 COL R
3125	232273462703	RST SM 0805 RC12H 27K PM1 R
3126	232273462402	RST SM 0805 RC12H 2K4 PM1 R
3127	213811611005	RST MFLM MFR-5S A 1M PM1 A
3128	213811611005	RST MFLM MFR-5S A 1M PM1 A
3129	213811611004	RST MFLM MFR-5S A 1K PM1 A
3130	213811614708	RST MFLM MFR-5S A 4R7 PM1 A
3134	232271161184	RST SM 1206 RC01 180K PM5 R
3135	212266200101	PTC DC 1A85 30V S 0R045 PM30 A
3136	232271161101	RST SM 1206 RC01 1R PM5 R
3137	213811611002	RST MFLM MFR-5S A 1K PM1 A
3138	213811613908	RST MFLM MFR-5S A 3R9 PM1 A
3190	319802190020	RST SM 0805 JUMP. 0R05 COLR
3191	232271191032	RST SM 1206 JUMP. MAX 0R05 R
3202	319802131030	RST SM 0603 10K PM5 COL
3203	319802131030	RST SM 0603 10K PM5 COL
3204	319802190030	RST SM 0603 JUMP. 0R05 COL
3206	319802131010	RST SM 0603 1R PM5 COL
3207	319802131010	RST SM 0603 1R PM5 COL
3208	319802131090	RST SM 0603 10R PM5 COL
3209	319802131030	RST SM 0603 10K PM5 COL
3210	319802131030	RST SM 0603 10K PM5 COL
3221	319802131030	RST SM 0603 10K PM5 COL
3222	319802131030	RST SM 0603 10K PM5 COL
3223	319802131010	RST SM 0603 1R PM5 COL
3224	319802131010	RST SM 0603 1R PM5 COL
3225	319802131010	RST SM 0603 1R PM5 COL
3226	319802131010	RST SM 0603 1R PM5 COL
3227	319802135620	RST SM 0603 5K6 PM5 COL
3228	319802135620	RST SM 0603 5K6 PM5 COL
3230	319802190030	RST SM 0603 JUMP. 0R05 COL
3231	319802131010	RST SM 0603 1R PM5 COL
3401	232270260205	RST SM 0603 RC21 2M PM5 R
3404	319802134730	RST SM 0603 47K PM5 COL
3405	319802131030	RST SM 0603 10K PM5 COL
3406	319802134720	RST SM 0603 4K7 PM5 COL
3407	319802134720	RST SM 0603 4K7 PM5 COL
3409	235003510101	RST NETW SM ARV24 4X1R PM5 R
3410	235003510103	RST NETW SM ARV24 4X 10K PM5 R
3411	235003510103	RST NETW SM ARV24 4X 10K PM5 R
3423	319802131030	RST SM 0603 10K PM5 COL
3424	319802131030	RST SM 0603 10K PM5 COL
3427	319802131030	RST SM 0603 10K PM5 COL
3428	319802131030	RST SM 0603 10K PM5 COL
3430	319802131030	RST SM 0603 10K PM5 COL
3431	319802131030	RST SM 0603 10K PM5 COL
3432	319802131030	RST SM 0603 10K PM5 COL
3433	319802131030	RST SM 0603 10K PM5 COL
3434	319802131030	RST SM 0603 10K PM5 COL
3435	319802131030	RST SM 0603 10K PM5 COL
3436	319802131030	RST SM 0603 10K PM5 COL
3501	319802131010	RST SM 0603 1R PM5 COL
3502	319802131010	RST SM 0603 1R PM5 COL
3503	319802131010	RST SM 0603 1R PM5 COL
3504	319802131010	RST SM 0603 1R PM5 COL
3505	319802131010	RST SM 0603 1R PM5 COL
3506	319802131010	RST SM 0603 1R PM5 COL
3507	319802131010	RST SM 0603 1R PM5 COL
3508	319802132210	RST SM 0603 220R PM5 COL
3509	319802132210	RST SM 0603 220R PM5 COL
3510	319802190020	RST SM 0805 JUMP. 0R05 COLR
3516	319802131030	RST SM 0603 10K PM5 COL
3517	319802131020	RST SM 0603 1K PM5 COL
3519	319802131030	RST SM 0603 10K PM5 COL
3520	319802131030	RST SM 0603 10K PM5 COL
3601	319802152290	RST SM 0805 22R PM5 COL R
3602	232273466492	RST SM 0805 RC12H 6K49 PM1 R
3603	319802154730	RST SM 0805 47K PM5 COL R
3606	319802156830	RST SM 0805 68K PM5 COL R
3607	319802153330	RST SM 0805 33K PM5 COL R
3608	319802153330	RST SM 0805 33K PM5 COL R
3609	232273461002	RST SM 0805 RC12H 1K PM1 R
3610	213836500065	RTRM CER LIN 10K H RVM06HP0 B
3612	232273061203	RST SM 0805 RC11 20K PM5 R
3613	232273463301	RST SM 0805 RC12H 330R PM1 R
3614	232273465102	RST SM 0805 RC12H 5K1 PM1 R
3615	319802152290	RST SM 0805 22R PM5 COL R
3616	232273462703	RST SM 0805 RC12H 27K PM1 R
3617	232273464702	RST SM 0805 RC12H 4K7 PM1 R
3618	232273465102	RST SM 0805 RC12H 5K1 PM1 R
3621	319802151030	RST SM 0805 10K PM5 COL R
3622	319802152240	RST SM 0805 220K PM5 COL R
3624	319802154730	RST SM 0805 47K PM5 COL R
3625	319802151040	RST SM 0805 1K PM5 COL R
3627	319802154790	RST SM 0805 47R PM5 COL R
3629	319802151030	RST SM 0805 10K PM5 COL R
3631	319802190020	RST SM 0805 JUMP. 0R05 COLR
3633	319802190020	RST SM 0805 JUMP. 0R05 COLR
3634	212010592139	RST MOX 1W RSS S 270R PM5 B
3635	319802131030	RST SM 0603 10K PM5 COL
3637	232273461803	RST SM 0805 RC12H 18K PM1 R
3640	319802154730	RST SM 0805 47K PM5 COL R
3641	232273462702	RST SM 0805 RC12H 2K7 PM1 R
3643	319802151030	RST SM 0805 10K PM5 COL R
3644	232273462202	RST SM 0805 RC12H 2K2 PM1 R
3645	319802151030	RST SM 0805 10K PM5 COL R
3646	232273463302	RST SM 0805 RC12H 3K3 PM1 R
3647	232273461503	RST SM 0805 RC12H 15K PM1 R
3648	319802131030	RST SM 0603 10K PM5 COL
3650	319802190020	RST SM 0805 JUMP. 0R05 COLR

5101	313818870151	LINE FILTER 9MH
5103	823827711581	TFM POW FXD
5106	313816874511	FERRITE BEAD
5107	313816874511	FERRITE BEAD
5201	313817874891	BEAD 1206 1MHZ CB32161

6101	932216289683	DIO REC PG208 A (PAJI) R
6102	932216289683	DIO REC PG208 A (PAJI) R
6103	932216289683	DIO REC PG208 A (PAJI) R
6104	932216289683	DIO REC PG208 A (PAJI) R
6105	932216287683	DIO REC PG47 A (PAJI) R

6106 933703700133 DIO REC BYV26E A (PHSE) A
6107 933952580685 DIO SIG SM BAV103 (TEG0) R
6108 933952580685 DIO SIG SM BAV103 (TEG0) R
6109 932214337687 DIO REC FCH20A15 (NIEC) L
6110 932216647682 DIO REC SB340-F5 (PAJI) B
6221 933913910115 DIO SIG SM BAS32L (PHSE) R
6222 932217973668 DIO REC SM BAT42W (PAJI) R
6301 933516940215 DIO REG SM BZX84-C3V0 (PHSE) R
6302 933770290215 DIO REG SM BZX84-B2V7 (PHSE) R
6402 933913910115 DIO SIG SM BAS32L (PHSE) R
6601 932216668668 DIO REC SM SS14 (PAJI) R
6603 932216668668 DIO REC SM SS14 (PAJI) R
6604 932216668668 DIO REC SM SS14 (PAJI) R
6605 932216668668 DIO REC SM SS14 (PAJI) R

7052 933967310685 TRA SIG SM BC848C (ONSE) R
7101 932213028682 IC L5991 (ST) L
7102 932215101687 FET POW STP6NC60FP (ST) L
7104 932214014667 OPT CP TCET1103(G) (VISH) L
7106 933771100686 IC TL431CLP S (MOTA) R
7202 932214526668 IC SM M24C02-WMN6 (ST) R
7203 932214526668 IC SM M24C02-WMN6 (ST) R
7206 935260739118 IC SM 74LVC14APW (PHSE) R
7208 933714830653 IC SM 74HC4052D (PHSE) R
7401 935271000512 IC SM P87C51MC2BA/01 (PHSE) L
7402 932214725682 IC M24C16-WBN6 (ST) L
7501 933967380685 TRA SIG SM BC858C (ONSE) R
7502 933967380685 TRA SIG SM BC858C (ONSE) R
7601 932217173668 IC SM LM2594M-ADJ (NSC0) R
7603 933967310685 TRA SIG SM BC848C (ONSE) R
7604 932212353668 IC SM TL431ACD S (ST) R
7605 932212353668 IC SM TL431ACD S (ST) R
7609 933967310685 TRA SIG SM BC848C (ONSE) R
7610 933967380685 TRA SIG SM BC858C (ONSE) R
7611 932217311668 IC SM LF353M (NSC0) R
7614 932209265685 TRA SIG SM MUN2211J (ONSE) R
7615 932216638668 FET POW SM SI5441DC (VISH) R
7616 932209265685 TRA SIG SM MUN2211J (ONSE) R
7617 933967380685 TRA SIG SM BC858C (ONSE) R
7619 932209265685 TRA SIG SM MUN2211J (ONSE) R

1051 SCALER ASSY

1101 313818872851 CBLE MAINS 3P/70/FHOOK
1102 242208600266 FUSE 5X20 HT 2A 250V IEC B
1105 243803100404 CON BM SUPP H 1P F 16V 3A B
1301 823827711061 OSC XTL 25MHZ 15PF

2301 223878615649 CER2 0603 X7R 16V 1N PM10 R
2302 223878615649 CER2 0603 X7R 16V 1N PM10 R
2303 202001293721 ELCAP SM RV2 16V 10U PM20 R
2304 223878615649 CER2 0603 X7R 16V 1N PM10 R
2305 223878615649 CER2 0603 X7R 16V 1N PM10 R
2306 202001293723 ELCAP SM RV2 16V 47U PM20 R
2307 223878615649 CER2 0603 X7R 16V 1N PM10 R
2308 223878615649 CER2 0603 X7R 16V 1N PM10 R
2309 223878615649 CER2 0603 X7R 16V 1N PM10 R
2311 223878615649 CER2 0603 X7R 16V 1N PM10 R
2312 223878616641 CER2 0603 X7R 16V 22N PM10 R
2313 202001293721 ELCAP SM RV2 16V 10U PM20 R
2314 202001293723 ELCAP SM RV2 16V 47U PM20 R
2315 223886715339 CER1 0603 NP0 50V 33P PM5 R
2316 223886715339 CER1 0603 NP0 50V 33P PM5 R
2317 223886715339 CER1 0603 NP0 50V 33P PM5 R
2318 223886715339 CER1 0603 NP0 50V 33P PM5 R
2319 223886715339 CER1 0603 NP0 50V 33P PM5 R
2320 223886715339 CER1 0603 NP0 50V 33P PM5 R
2321 223886715339 CER1 0603 NP0 50V 33P PM5 R
2322 223886715339 CER1 0603 NP0 50V 33P PM5 R
2323 223886715339 CER1 0603 NP0 50V 33P PM5 R
2324 223886715339 CER1 0603 NP0 50V 33P PM5 R
2325 223886715339 CER1 0603 NP0 50V 33P PM5 R
2326 223886715339 CER1 0603 NP0 50V 33P PM5 R
2327 223886715339 CER1 0603 NP0 50V 33P PM5 R
2328 223886715339 CER1 0603 NP0 50V 33P PM5 R
2329 223886715339 CER1 0603 NP0 50V 33P PM5 R
2330 223886715339 CER1 0603 NP0 50V 33P PM5 R
2331 223886715339 CER1 0603 NP0 50V 33P PM5 R
2332 223886715339 CER1 0603 NP0 50V 33P PM5 R
2333 223886715339 CER1 0603 NP0 50V 33P PM5 R
2334 223886715339 CER1 0603 NP0 50V 33P PM5 R
2335 223886715339 CER1 0603 NP0 50V 33P PM5 R
2336 223886715339 CER1 0603 NP0 50V 33P PM5 R
2337 223886715339 CER1 0603 NP0 50V 33P PM5 R
2338 223886715339 CER1 0603 NP0 50V 33P PM5 R
2339 223886715339 CER1 0603 NP0 50V 33P PM5 R
2340 223886715339 CER1 0603 NP0 50V 33P PM5 R
2341 223886715339 CER1 0603 NP0 50V 33P PM5 R
2342 223886715339 CER1 0603 NP0 50V 33P PM5 R
2343 223886715339 CER1 0603 NP0 50V 33P PM5 R
2344 223886715339 CER1 0603 NP0 50V 33P PM5 R
2345 223886715339 CER1 0603 NP0 50V 33P PM5 R
2346 223886715339 CER1 0603 NP0 50V 33P PM5 R
2347 223886715339 CER1 0603 NP0 50V 33P PM5 R
2348 223886715339 CER1 0603 NP0 50V 33P PM5 R
2349 223886715339 CER1 0603 NP0 50V 33P PM5 R
2350 223886715339 CER1 0603 NP0 50V 33P PM5 R
2351 223886715339 CER1 0603 NP0 50V 33P PM5 R
2352 223886715339 CER1 0603 NP0 50V 33P PM5 R
2353 223886715339 CER1 0603 NP0 50V 33P PM5 R
2354 223886715339 CER1 0603 NP0 50V 33P PM5 R
2355 223886715339 CER1 0603 NP0 50V 33P PM5 R
2356 223886715339 CER1 0603 NP0 50V 33P PM5 R
2357 223886715339 CER1 0603 NP0 50V 33P PM5 R
2358 223886715339 CER1 0603 NP0 50V 33P PM5 R
2359 223886715339 CER1 0603 NP0 50V 33P PM5 R
2360 223886715339 CER1 0603 NP0 50V 33P PM5 R
2361 223886715339 CER1 0603 NP0 50V 33P PM5 R
2362 223886715339 CER1 0603 NP0 50V 33P PM5 R
2363 223878616643 CER2 0603 X7R 16V 33N PM10 R
2364 223878616643 CER2 0603 X7R 16V 33N PM10 R
2365 223878616643 CER2 0603 X7R 16V 33N PM10 R
2366 223878616643 CER2 0603 X7R 16V 33N PM10 R
2367 223878616643 CER2 0603 X7R 16V 33N PM10 R
2368 223878616643 CER2 0603 X7R 16V 33N PM10 R
2369 223878615649 CER2 0603 X7R 16V 1N PM10 R
2370 223878615649 CER2 0603 X7R 16V 1N PM10 R
2371 223878615649 CER2 0603 X7R 16V 1N PM10 R
2372 223878615649 CER2 0603 X7R 16V 1N PM10 R
2373 223878615649 CER2 0603 X7R 16V 1N PM10 R
2374 223878615649 CER2 0603 X7R 16V 1N PM10 R
2375 223878615649 CER2 0603 X7R 16V 1N PM10 R
2376 223878615649 CER2 0603 X7R 16V 1N PM10 R
2377 223878615649 CER2 0603 X7R 16V 1N PM10 R
2378 223878615649 CER2 0603 X7R 16V 1N PM10 R
2379 223878615649 CER2 0603 X7R 16V 1N PM10 R
2380 223878615649 CER2 0603 X7R 16V 1N PM10 R
2381 223878615649 CER2 0603 X7R 16V 1N PM10 R
2382 223878615649 CER2 0603 X7R 16V 1N PM10 R
2383 223878615649 CER2 0603 X7R 16V 1N PM10 R
2384 223878615649 CER2 0603 X7R 16V 1N PM10 R
2385 223878615649 CER2 0603 X7R 16V 1N PM10 R
2386 223878615649 CER2 0603 X7R 16V 1N PM10 R
2387 223878615649 CER2 0603 X7R 16V 1N PM10 R
2388 223878615649 CER2 0603 X7R 16V 1N PM10 R
2389 223878615649 CER2 0603 X7R 16V 1N PM10 R
2390 223878615649 CER2 0603 X7R 16V 1N PM10 R
2391 223878615649 CER2 0603 X7R 16V 1N PM10 R
2392 223878615649 CER2 0603 X7R 16V 1N PM10 R
2393 223878615649 CER2 0603 X7R 16V 1N PM10 R
2394 223878615649 CER2 0603 X7R 16V 1N PM10 R
2395 223878615649 CER2 0603 X7R 16V 1N PM10 R
2396 223878615649 CER2 0603 X7R 16V 1N PM10 R
2397 223878615649 CER2 0603 X7R 16V 1N PM10 R
2398 223878615649 CER2 0603 X7R 16V 1N PM10 R
2399 223878615649 CER2 0603 X7R 16V 1N PM10 R

3304 319802131020 RST SM 0603 1K PM5 COL
3305 319802134790 RST SM 0603 47R PM5 COL
3306 319802134790 RST SM 0603 47R PM5 COL
3307 319802134790 RST SM 0603 47R PM5 COL
3308 319802134790 RST SM 0603 47R PM5 COL
3309 319802134790 RST SM 0603 47R PM5 COL
3310 319802134790 RST SM 0603 47R PM5 COL
3311 319802134790 RST SM 0603 47R PM5 COL
3312 319802134790 RST SM 0603 47R PM5 COL
3318 235003510479 RST NETW SM ARV24 4X 47R PM5 R
3319 235003510479 RST NETW SM ARV24 4X 47R PM5 R
3320 235003510479 RST NETW SM ARV24 4X 47R PM5 R
3321 235003510479 RST NETW SM ARV24 4X 47R PM5 R
3322 235003510479 RST NETW SM ARV24 4X 47R PM5 R
3323 235003510479 RST NETW SM ARV24 4X 47R PM5 R
3324 235003510479 RST NETW SM ARV24 4X 47R PM5 R
3325 235003510479 RST NETW SM ARV24 4X 47R PM5 R
3326 235003510479 RST NETW SM ARV24 4X 47R PM5 R
3327 235003510479 RST NETW SM ARV24 4X 47R PM5 R
3328 235003510479 RST NETW SM ARV24 4X 47R PM5 R
3329 235003510479 RST NETW SM ARV24 4X 47R PM5 R
3330 319802131010 RST SM 0603 1R PM5 COL
3331 319802131010 RST SM 0603 1R PM5 COL
3332 319802133390 RST SM 0603 33R PM5 COL
3333 319802190030 RST SM 0603 JUMP. 0R05 COL
3334 319802190030 RST SM 0603 JUMP. 0R05 COL
3337 232270260569 RST SM 0603 RC21 56R PM5 R
3338 319802131230 RST SM 0603 12K PM5 COL
3339 232270403749 RST SM 0603 RC22H 37R4 PM1 R
3340 232270462709 RST SM 0603 RC22H 27R PM1 R
3341 232270403749 RST SM 0603 RC22H 37R4 PM1 R
3342 232270462709 RST SM 0603 RC22H 27R PM1 R
3343 232270403749 RST SM 0603 RC22H 37R4 PM1 R
3344 232270462709 RST SM 0603 RC22H 27R PM1 R
3345 232270403749 RST SM 0603 RC22H 37R4 PM1 R
3346 232270403749 RST SM 0603 RC22H 37R4 PM1 R
3347 232270403749 RST SM 0603 RC22H 37R4 PM1 R
3348 319802134790 RST SM 0603 47R PM5 COL
3349 319802134790 RST SM 0603 47R PM5 COL
3350 319802134790 RST SM 0603 47R PM5 COL
3351 319802134790 RST SM 0603 47R PM5 COL
3354 319802134790 RST SM 0603 47R PM5 COL
3355 319802134790 RST SM 0603 47R PM5 COL
3357 319802134790 RST SM 0603 47R PM5 COL
3358 319802134720 RST SM 0603 4K7 PM5 COL
3359 319802134720 RST SM 0603 4K7 PM5 COL
3360 319802134790 RST SM 0603 47R PM5 COL
3361 319802134790 RST SM 0603 47R PM5 COL
3362 319802131030 RST SM 0603 10K PM5 COL
3363 319802153390 RST SM 0805 33R PM5 COL R

5301 313816874261 TI321611G8-SMD
5302 313816874261 TI321611G8-SMD
5303 313816874261 TI321611G8-SMD
5304 313816874261 TI321611G8-SMD
5305 313816874261 TI321611G8-SMD
5306 313816874261 TI321611G8-SMD
5307 313816874261 TI321611G8-SMD
5308 313816874261 TI321611G8-SMD
5309 313816874261 TI321611G8-SMD
5311 242254944195 IND FXD 0805 EMI 1MHZ 220R R
5312 313816874261 TI321611G8-SMD
5313 313816874261 TI321611G8-SMD

6301 933516940215 DIO REG SM BZX84-C3V0 (PHSE) R
6302 933770290215 DIO REG SM BZX84-B2V7 (PHSE) R

7301 935267865557 SCALER IC SAA6713H
7302 932218206685 IC SM IRU1206-25CY (INR0) R
7303 932218206685 IC SM IRU1206-25CY (INR0) R

1053 CONTROL ASSY

1701 243812900043 SWI TACT H=4.3 BK 1G

6711 932214603682 LED VS L-3WYGW

GENERAL PRODUCT SPECIFICATION

PHILIPS - 150B3B
GENERAL PRODUCT
SPECIFICATION

. ANALOG SIGNAL INPUT

. AUTO PICTURE ADJUSTMENT

. 14 FACTORY PRESET MODES AND 15 USER MODES WHICH CAN BE RECOVERED TO PRESET MODES

. USER FRIENDLY OSD DISPLAY FOR MODE IDENTIFICATION /ADJUSTMENT

. DDC2B COMMUNICATION CAPABILITY

. MAX. RESOLUTION 1024 x 768 NON-INTERLACED AT 75 HZ

. 15 inches COLOR TFT LCD FLAT PANEL

. EASY TILT & SWIVEL BASE

. FULL RANGE POWER SUPPLY 90 264 VAC

. CE ENVIRONMENTAL POLICY

. ANTI-GLARE TO REDUCE LIGHT REFLECTION

. POWER MANAGEMENT CAPABILITY

. SOG SYNC SUPPORT

. TCO 99

. PROVIDE USB HUB (Option)

. WALL MOUNT KIT (Option)

. PROTECTIVE COVER (Option)

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CLASS NO.	15"TFT XGA LCD CMTR-150B3B TYPE : 150B3B/00C BRAND : PHILIPS		8639 000 11911					
1-4-02								
NAME Y C Liu	SUPERS.	17	590 — 1	10		A4		
TY	CHECK	DATE 1-4-02	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

PHILIPS

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CLASS NO.	15"TFT XGA LCD CMTR-150B3B	8639 000 11911	
1-4-02	TYPE : 150B3B/00C BRAND : PHILIPS		

NAME Y C Liu	SUPERS.	17	590 — 2	10	A4
TY CHECK	DATE 1-4-02	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.			

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PHILIPS

1.0 FOREWORD

This specification describes a 15 XGA multi-scan color TFT LCD monitor with maximum resolution up to 1024x768/75Hz non-interlaced.

2.0 PRODUCT PROFILE

HUDSON 15 inches TFT LCD flat panel monitor
Analog interface
Integrated tilt, swivel and pivot base

2.1 LCD

Type NR.	: LG panel LS150X03-A3
Dimensions	: 326.0(H)*254.0(V)*11.5(D) mm
Pitch (mm)	: 0.297 x 0.297 mm
Color pixel arrangement	: RGB stripe arrangement
Display surface	: Antiglare with hard coating(3H)
Number of color	: 6 bits, 16,777,216 colors
Backlight	: CCFL edge-light system
Active area(W x H)	: 304.1 x 228.1mm (15.0 inches Diagonal)
Viewing angle(CR¡Ù10)	: Vertical 9095 degree, Horizontal 120115 degree typical.
Contrast ratio	: 350 typical.
Luminance of white	: 250200 Nits typical

Type NR.	: CPT panel CLAA150XG02
Dimensions	: 326.0(H)*252.0(V)*11.0(D) mm
Pitch (mm)	: 0.297 x 0.297 mm
Color pixel arrangement	: RGB stripe arrangement
Display surface	: Antiglare with hard coating(3H)
Number of color	: 8 bits, 16,777,216 colors
Backlight	: CCFL edge-light system
Active area(W x H)	: 304.1 x 228.1mm (15.0inches Diagonal)
Viewing angle(CR¡Ù10)	: Vertical 10095 degree, Horizontal 120115 degree typical.
Contrast ratio	: 350 typical.
Luminance of white	: 250200 Nits typical

2.2	Scanning frequencies	Hor.: 30-61KHz Ver.: 56-76 Hz
2.3	Video dot rate	: <79 MHz
2.4	Power input	: 90 264 Vac, 50/60 3 Hz
2.5	Power consumption	: < 2327 W typ. : AC input power < 2W when the DC switch is off.
2.6	Dimensions	: 386W 343W x 358H x 176180D (Incl. Pedestal)
2.7	Weight	: 4.81Kg

2.8 Function:

(1) D-shell
- Analog R/G/B separate inputs,
- H/V sync separated,
- Composite (H+V) TTL level,
- SOG sync

(2) USB HUB (option)

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2.9 Ambient temperature: 5-40 degree C

2.10 Safety and EMI requirements

Safety requirement: CCIB/CCEE (China), CE (Europe), CSA (Canada), IEC60950 CB Report, NOMNYCE (Mexico), PSB (Singapore), SEMKO (Nordic), TUV (Germany), UL (USA) GOST (Russia), B-MARK (Poland), DEMKO (Nordic), FIMKO (Nordic), SISIR, CPA (Singapore), EZU (Czech)

EMI requirement: BSMI (Taiwan), C-tick (Australia), CE (Europe), FCC (USA), IC (Canada), VCCI (Japan)

Ergonomic Requirement: ISO13406-2, TUV/GS TCO99, MPRII (Sweden), Nutek (Sweden)

Power management: EPA, Nutek, E2000.

Environmental & Low Emission: MPRII, TCO99

3.0 Electrical characteristics

Compatibility: PC2001, Windows 2000, Windows98/Me, Windows XP, NSTL

3.1 Interface signals

3.1.1 Video

Input signal: Video, H-sync, V-sync
Video: 0.7 Vp-p, input impedance, 75 ohm
Sync. : Separate sync TTL level. Input impedance 5k6 ohm
Hor. Sync Positive/Negative
Ver. Sync Positive/Negative

3.1.2 Interface Cable

D-Sub Cable pin assignment:

PIN No.	SIGNAL
1	Red
2	Green/SOG
3	Blue
4	Sense (GND)
5	Test (GND)
6	Red GND
7	Green GND
8	Blue GND
9	+5V
10	Sync GND
11	Sense (GND)
12	Serial data (SDA)
13	H/H+V sync
14	V-sync
15	Data clock (SCL)

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3.1.3 Software control functions via OSD/control
3.2 OSD (On Screen Display) function
Adjustable functions:

MAIN CONTROLS
LANGUAGE
ADJUST POSITION
BRIGHTNESS & CONTRAST
VIDEO NOISE
ADJUST COLOR
OSD SETTINGS
PRODUCT INFORMATION
RESET TO FACTORY SETTINGS
INPUT SELECTION
EXIT MAIN CONTROLS
MOVE SELECTION THEN ok

LANGUAGE:ENGLISH, ESPANOL, FRANCAIS, DEUTSCH, ITALIANO, JAPANESE, CHINESE

ADJUST POSITION:	HORIZONTAL VERTICAL
BRIGHTNESS & CONTRAST:	Brightness and Contrast adjustment.
VIDEO NOISE:	Phase adjustment, Clock adjustment
ADJUST COLOR:	Original panel color, 9300K for general use, 6500k for image management, User red green blue adjustable
OSD POSITION:	OSD H-position, OSD V-position
PRODUCT INFORMATION:	show the product information
RESET TO FACTORY SETTING:	recall return to Factory preset timings and settings.

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3.3 Timing requirement

3.3.1 Mode storing capacity

(1) Factory preset modes : 14
(2) User modes : 15

3.3.2 Factory preset timings

MODE NO.	1	2	3	4
RESOLUTION	640 x 350	720 x 400	640 x 480	640x480
Dot clock (MHz)	25.175	28.321	25.175	30.240
f h	31.469kHz	31.469kHz	31.469kHz	35.0kHz
A (us)	31.78(800 dots)	31.78(900dots)	31.778 (800 dots)	28.571(864 dots)
B (us)	3.813(96 dots)	3.813(108dots)	3.813 (96 dots)	2.116(64 dots)
C (us)	1.907(48 dots)	1.907(54dots)	1.907 (48 dots)	3.175(96 dots)
D (us)	25.42(640 dots)	25.42(720dots)	25.422 (640 dots)	21.164(640 dots)
E (us)	0.636(16 dots)	0.636(18dots)	0.636 (16 dots)	2.116(64 dots)
f v	70Hz(70.09)	70Hz(70.087)	60Hz (59.940)	66.7 Hz(66.667)
O (ms)	14.27(449 lines)	14.27(449 lines)	16.683 (525 lines)	15.000(525 lines)
P (ms)	0.064(2 lines)	0.064(2 lines)	0.064 (2 lines)	0.086(3 lines)
Q (ms)	1.907(60 lines)	1.112(35 lines)	1.049 (33 lines)	1.114(39 lines)
R (ms)	11.12(350 lines)	12.71(400 lines)	15.253 (480 lines)	13.714(480 lines)
S (ms)	1.179(37 lines)	0.384(12 lines)	0.317 (10 lines)	0.086(3 lines)
SYNC. H/V POLARITY	+/-	-/+	- / -	+/+ Or -/-
SEP . SYNC	Y	Y	Y	Y

A : H-Total
B : H- Sync width
C : H- Back porch
D : H- Video width
E : H- Front porch

O : V-Total
P : V- Sync width
Q :.V- Back porch
R : V- Video width
S :.V- Front porch

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MODE NO.	5	6	7	8
RESOLUTION	640 x 480	640 x 480	800 x 600	800 x 600
Dot clock(MHz)	31.500	31.500	36.000	40.000
f h	37.861kHz	37.500kHz	35.156kHz	37.879kHz
A (us)	26.413(832 dots)	26.667 (840 dots)	28.44 (1024 dots)	26.40 (1056 dots)
B (us)	1.270(40 dots)	2.032 (64 dots)	2.000 (72 dots)	3.200 (128 dots)
C (us)	4.064(128 dots)	3.810 (120 dots)	3.556 (128 dots)	2.200 (88 dots)
D (us)	20.317(640 dots)	20.317 (640 dots)	22.22 (800 dots)	20.00 (800 dots)
E (us)	0.762(24 dots)	0.508 (16 dots)	0.667 (24 dots)	1.000 (40 dots)
f v	72.809Hz	75Hz (75)	56Hz (56.25)	60Hz (60.316)
O (ms)	13.735(520 lines)	13.333 (500 lines)	17.78 (625 lines)	16.58 (628 lines)
P (ms)	0.079(3 lines)	0.080 (3 lines)	0.057 (2 lines)	0.106 (4 lines)
Q (ms)	0.739(28 lines)	0.427 (16 lines)	0.626 (22 lines)	0.607 (23 lines)
R (ms)	12.678(480 lines)	12.80 (480 lines)	17.07 (600 lines)	15.84 (600 lines)
S (ms)	0.237(9 lines)	0.027 (1 line)	0.028 (1 line)	0.026 (1 line)
SYNC. H/V POLARITY	-/-	- / -	+ / +	+ / +
SEP . SYNC	Y	Y	Y	Y

MODE NO.	9	10	11	12
RESOLUTION	800 x 600	800 x 600	832 x 624	1024 x 768
Dot clock(MHz)	50.000	49.500	57.280	65.000
f h	48.077kHz	46.875kHz	49.722kHz	48.363kHz
A (us)	20.80 (1040dots)	21.333 (1056dots)	20.11 (1152dots)	20.677(1344 dots)
B (us)	2.400 (120 dots)	1.616 (80 dots)	1.117 (64 dots)	2.092(136 dots)
C (us)	1.280 (64 dots)	3.232 (160 dots)	3.911 (224 dots)	2.462(160 dots)
D (us)	16.00 (800 dots)	16.162 (800 dots)	14.52 (832 dots)	15.754(1024 dots)
E (us)	1.120 (56 dots)	0.323 (16 dots)	0.559 (32 dots)	0.369(24 dots)
f v	72Hz (72.188)	75Hz (75.000)	75Hz (74.546)	60.004Hz
O (ms)	13.85 (666 lines)	13.333 (625lines)	13.41 (667 lines)	16.666(806 lines)
P (ms)	0.125 (6 lines)	0.064 (3 lines)	0.060 (3 lines)	0.124(6 lines)
Q (ms)	0.478 (23 lines)	0.448 (21 lines)	0.784 (39 lines)	0.600(29 lines)
R (ms)	12.48 (600 lines)	12.80 (600lines)	12.55 (624 lines)	15.880(768 lines)
S (ms)	0.770 (37 line)	0.021 (1 line)	0.020 (1 lines)	0.062(3 lines)
SYNC. H/V POLARITY	+ / +	+ / +	- / -	-/-
SEP . SYNC	Y	Y	Y	Y

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CLASS NO.

1-4-02

15"TFT XGA LCD CMTR-150B3B

TYPE : 150B3B/00C

BRAND : PHILIPS

8639 000 11911

NAME Y C Liu | SUPERS. | 17 | 590 — 8 | 10 | A4

TY | CHECK | DATE 1-4-02 | Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.

2838 100 05424

MODE NO.	13	14
RESOLUTION	1024 x 768	1024 x 768
Dot clock(MHz)	75.000	78.750
f h A (us) B (us) C (us) D (us) E (us)	56.476kHz 17.707(1328 dots) 1.813(136 dots) 1.920(144 dots) 13.653(1024 dots) 0.320(24 dots)	60.023kHz 16.66 (1312dots) 1.219 (96 dots) 2.235 (176 dots) 13.003 (1024dots) 0.203 (16 dots)
f v O (ms) P (ms) Q (ms) R (ms) S (ms)	70.069Hz 14.272(806 lines) 0.106(6 lines) 0.513(29 lines) 13.599(768 lines) 0.053(3 lines)	75Hz (75.029) 13.328 (800 lines) 0.050 (3 lines) 0.466 (28 lines) 12.795 (768 lines) 0.017 (1 line)
SYNC. H/V POLARITY	-/-	+/+
SEP . SYNC	Y	Y

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3.3.3 Horizontal scanning

Sync polarity : Positive or Negative
Scanning frequency : 30 - 61 KHz

3.3.4 Vertical scanning

Sync polarity : Positive or Negative
Scanning frequency : 56 - 76 Hz

3.4 Power input connection

Power cord length : 1.8 M
Power cord type : 3 leads power cord with protective earth plug.

3.5 Power management

The power consumption and the status indication of the set with power management function are as follows,

STATUS	Horizontal	Vertical	Power Spec	LED
	On	Pulse	Pulse	as normal on Green
Stand-by	No Pulse	Pulse	< 2 W	Amber
Suspend	Pulse	No Pulse	< 2 W	Amber
	Off	No Pulse	No Pulse	< 2 W Amber

Power switch off is less than 2W

3.6 Display identification

In accordance with DVI requirement, use DDC2B and EDID 3.0 structure 1.3.

4.0 Visual characteristics

4.1 Test conditions

Unless otherwise specified, this specification is defined under the following conditions.

(1) Input signal : As defined in 3.3, 1024 x 768/75Hz mode (60.023 KHz)
Signal sources must have 75 ohms output impedance.

(2) Luminance setting: Set contrast to 50 % and brightness to 100 % with full white pattern.

(3) Warm-up: more than 30 minutes after power on with signal supplied.

(4) Ambient light: 400 -- 600 lux.

(5) Ambient temperature: 25 ±5 C

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4.2Resolution

Factory preset modes (* 140 modes)

Mode	Resolution	H. freq. / V. freq	Standard
1.	640 x 350	31.469Khz/70.087Hz	VGA
2.	720 x 400	31.469Khz/70.087Hz	VGA
3.	640 x 480	31.469Khz/59.940Hz	VGA
4.	640 x 480	35.000Khz/66.667Hz	Macintosh
5.	640 x 480	37.861Khz/72.809Hz	VESA
6.	640 x 480	37.500Khz/75.000Hz	VESA
7.	800 x 600	35.156Khz/56.250Hz	VESA
8.	800 x 600	37.879Khz/60.317Hz	VESA
9.	800 x 600	48.077Khz/72.188Hz	VESA
10.	800 x 600	46.875Khz/75.000Hz	VESA
11.	832 x 624	49.700Khz/75.000Hz	Macintosh
12.	1024 x 768	48.363Khz/60.004Hz	VESA
13.	1024 x 768	56.476Khz/70.069Hz	VESA
14.	1024 x 768	60.023Khz/75.029Hz	VESA

4.3 Brightness: 250 nits (typ.) at maximum contrast and maximum brightness
(At center of the screen, Fig. 1)

4.4 Image size

4.4.1 Actual display size

304.1 x 228.1mm

4.5 Brightness uniformity

Set contrast at 50% and turn the brightness to get above 200 nits.
at center of the screen
Apply the Fig 1, it should comply with the following formula:

$$\frac{\text{Minimum (B1, B2, .., B5)}}{\text{Maximum (B1, B2, .., B5)}} > 80\ \%$$

4.6 White color adjustment

There are two factory preset white color 9300K and 6500K.

Apply full white pattern, with brightness in 100 % position
and the contrast control at 50 %.
The 1931 CIE Chromaticity (color triangle) diagram (x, y)
coordinate for the screen center should be:

9300K CIE coordinates	X = 0.281+/ - 0.020 Y = 0.311 +/ - 0.020
6500K CIE coordinates	X = 0.312 +/ - 0.020 Y = 0.338 +/ - 0.020

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5.0 Mechanical characteristics

5.1 Controls

Front: - DC power switch
-OSD function key

Rear: -Video signal cable
-Power cord socket
-DC 12V fly in
-USB hub(option)

5.2 Unit dimension / Weight

Set dimension (incl. pedestal): 343W x 342H x 165D

Net weight: 4.3 Kg

5.3 Tilt and swivel base

Tilt angle: -5 to +25

Swivel rotation: +/- 175

5.4 Transportation packages

5.4.1 Shipping dimension/Weight

Carton dimension: 413W x 413H x 220D

Gross weight: 5.4 Kg

5.4.2 Block unit / Palletization

layers/block	sets/layer	sets/block unit
9	6	54

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6.0 Environmental characteristics

The following sections define the interference and susceptibility condition limits that might occur between external environment and the display device.

6.1 Susceptibility of display to external environment

Operating

- Temperature : 5 to 40 degree C
- Humidity : 20% ~ 80%
- Altitude : 0-12,000 feet
- Air pressure : 600-1100 mBAR

Storage

- Temperature : -20 to 60 degree C
- Humidity : 5% ~ 95% (< 40)
- Altitude : 0-30,000 feet
- Air pressure : 300-1100 mBAR

Note: recommend at 5 to 35C, Humidity less than 60 %

6.2 Transportation tests

Standard		Philips UAN-D1400	NSTA
Drop Test	Height	76.0 cm	76.0 cm
	Sequence	1 corner 3 faces (-10deg C x 16 hrs)	1 corner 3 edge (Room temp) 6 face
	Test Result	Electrical function ok Mechanical function ok No serious damage on set appearance (Room temp -10 degree C, humidity 70 %)	
Vibration Test	Sequence	(1) PACKAGING 5-200 Hz, 0.73 G, 30 min. for Each axis	
		(2) OPERATING 10-50-10 Hz, 0.35 mm, 30 min. for Each axis	
	Test Result	Electrical function ok Mechanical function ok No serious damage on set appearance	
Bump Test		For design evaluation only Operating 10 G, 11 msec, 1000 cycles Temperature : 23 degree C Humidity : 60 % Air pressure : 100 kpa (According to DSD draft standard UAN-D636)	

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6.3 Display disturbances from external environment
According to IEC 801-2 for ESD disturbances

6.4 Display disturbances to external environment

6.4.1 EMI
EMI:FCC, IC, VCCI, CE, C-Tick, MPRII, BSMI.

7.0 Reliability

7.1 Mean time between failures (MTBF)
System MTBF (Excluding the LCD panel and CCFL): 50,000 hrs
CCFL MTBF: 30,000 hrs

8.0 Quality assurance requirements

8.1 Acceptance test
According to MIL-STD-105D Control II level

AQL : 0.65 (major)
1.5 (minor)
(Please also refer to annual quality agreement)

9.0Serviceability
The serviceability of this monitor should fulfill the requirements which are prescribed in UAW-0346 and must be checked with the check list UAT-0361.

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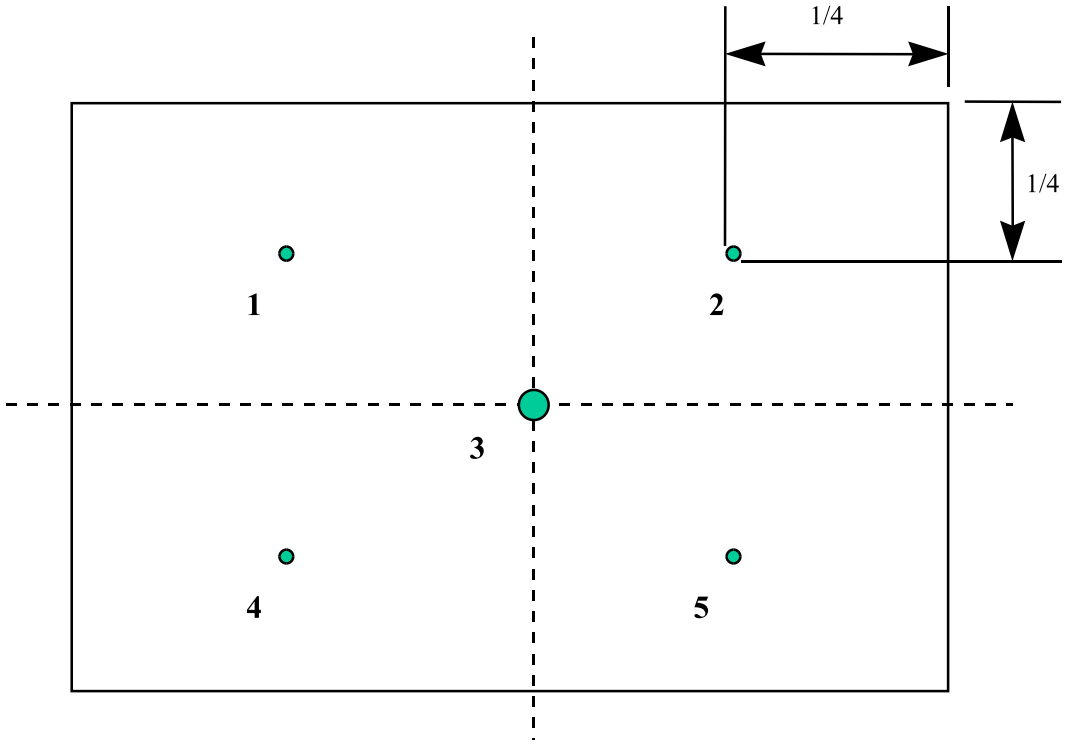
Fig 1: Brightness and Uniformity



Average: 5 points average

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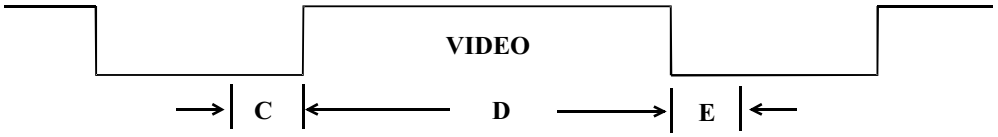
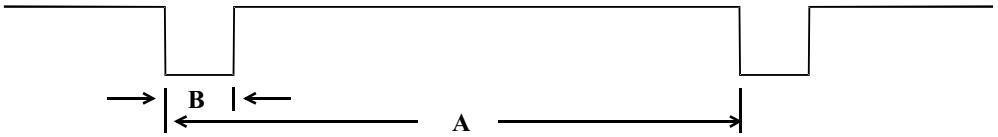
CLASS NO.	15"TFT XGA LCD CMTR-150B3B TYPE : 150B3B/00C BRAND : PHILIPS	8639 000 11911
1-4-02		

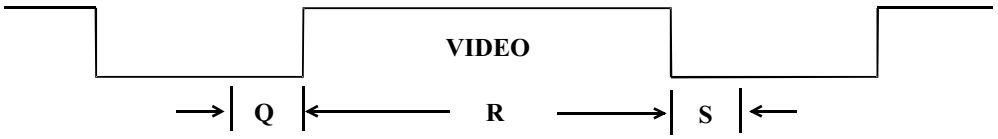
NAME Y C Liu	SUPERS.	17	590 — 15	10		A4
TY / CHECK	DATE 1-4-02	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.				

SEPARATE SYNC.

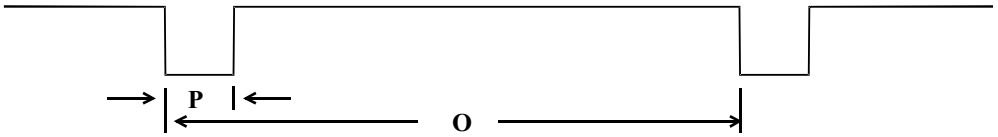


HORIZONTAL

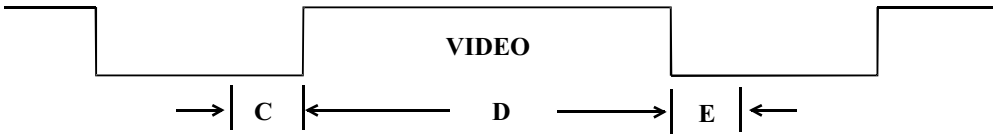




VERTICAL



COMPOSITE SYNC.



HORIZONTAL

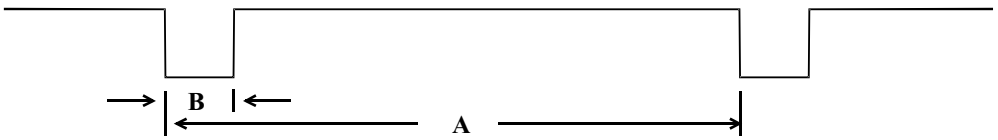


FIG-2 TIMING CHART -1

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CLASS NO.	15"TFT XGA LCD CMTR-150B3B TYPE : 150B3B/00C BRAND : PHILIPS	8639 000 11911
1-4-02		

NAME Y C Liu	SUPERS.	17	590 — 16	10		A4
TY / CHECK	DATE 1-4-02	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.				

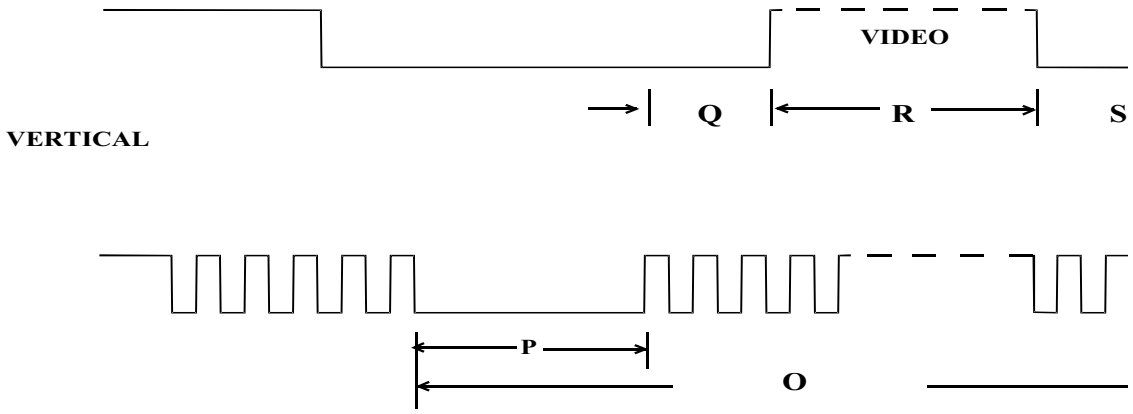

FIG-3 TIMING CHART -2

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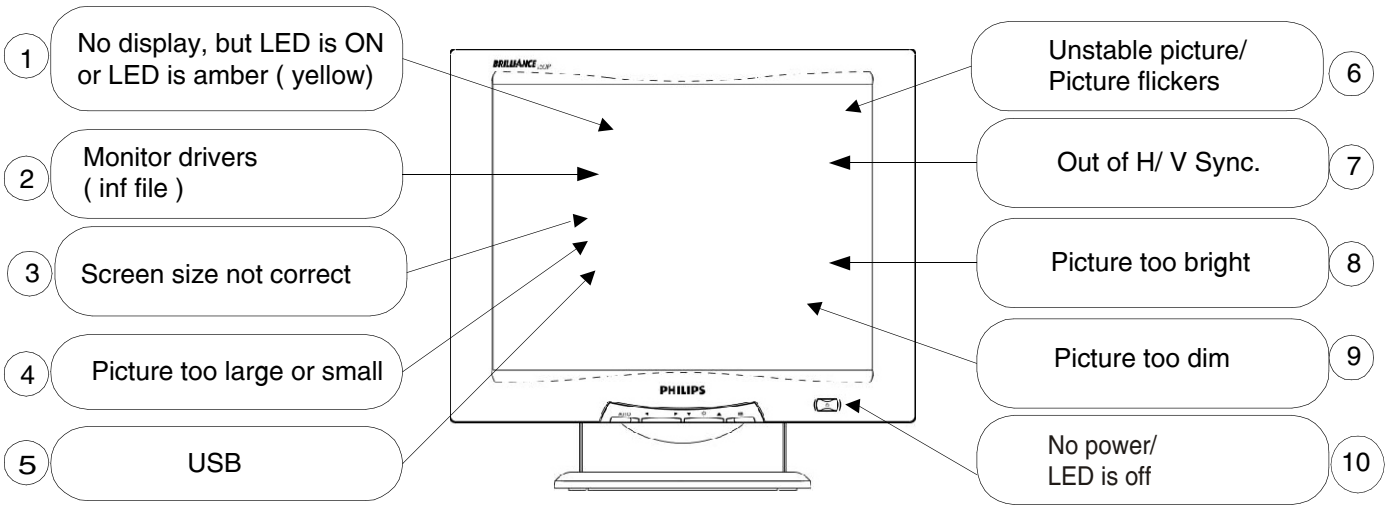
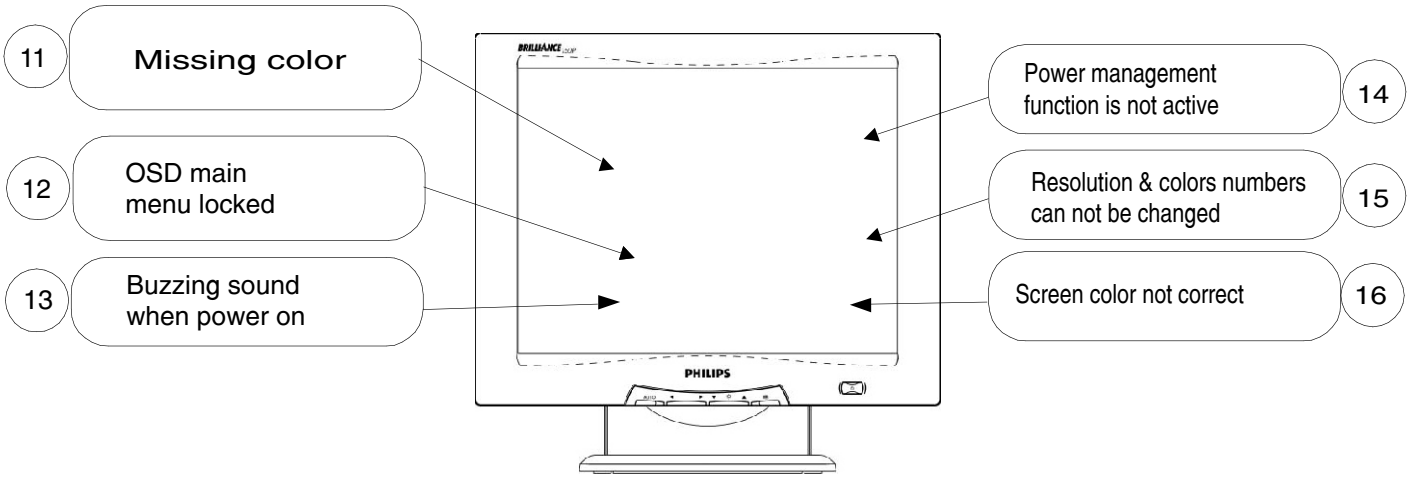
CLASS NO.	15"TFT XGA LCD CMTR-150B3B TYPE : 150B3B/00C BRAND : PHILIPS		8639 000 11911					
1-4-02								
NAME Y C Liu	SUPERS.	17	590 — 17	10		A4		
TY	CHECK	DATE 1-4-02	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

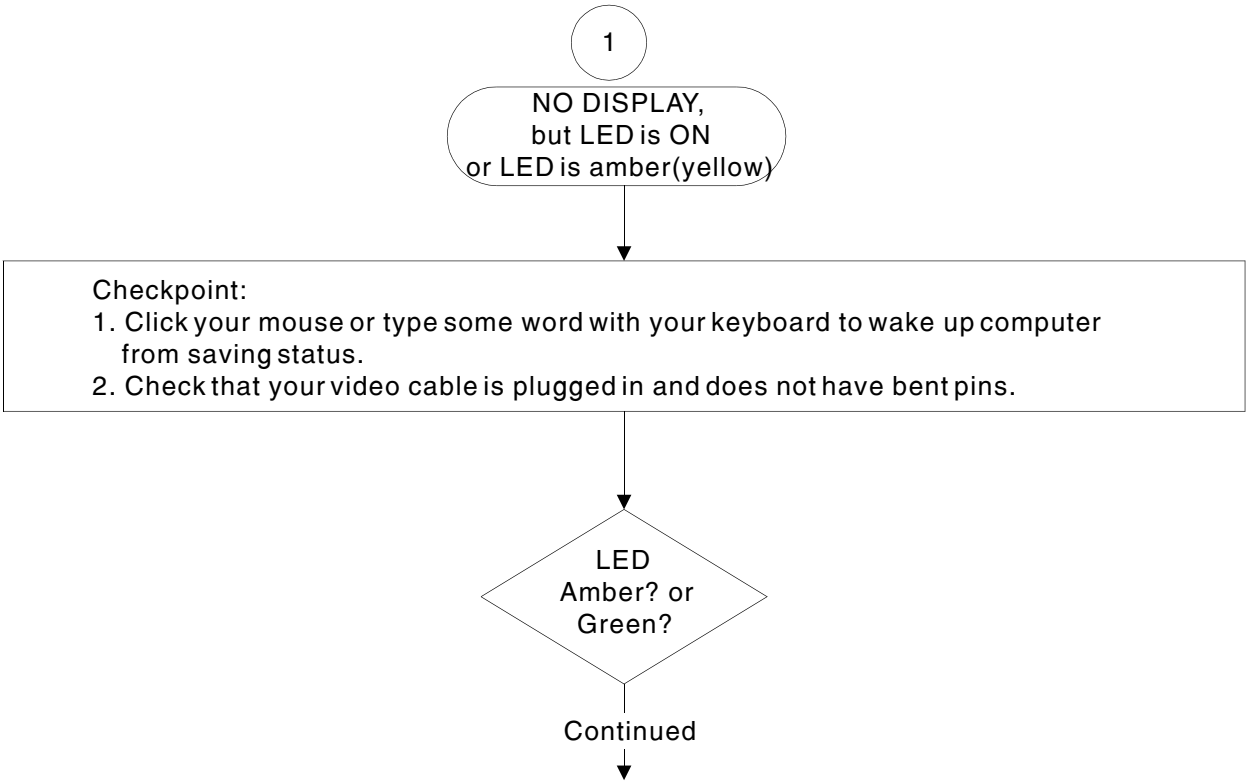
2838 100 05424

General Troubleshooting Guide


1 No display, but LED is ON or LED is amber (yellow)
2 Monitor drivers (inf file)
3 Screen size not correct
4 Picture too large or small
5 USB
6 Unstable picture/ Picture flickers
7 Out of H/ V Sync.
8 Picture too bright
9 Picture too dim
10 No power/ LED is off
PHILIPS


11 Missing color
12 OSD main menu locked
13 Buzzing sound when power on
14 Power management function is not active
15 Resolution & colors numbers can not be changed
16 Screen color not correct
PHILIPS

General Troubleshooting Guide (Continued)

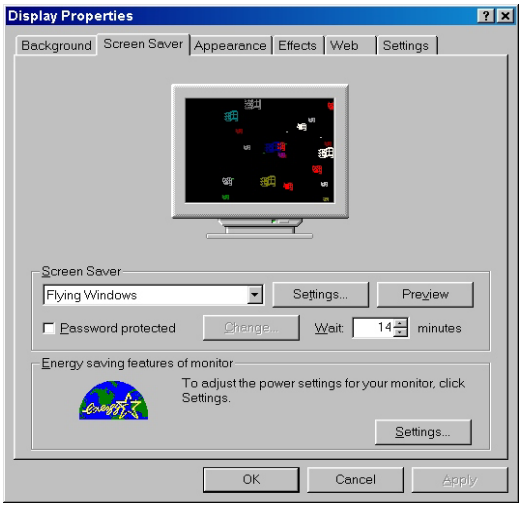

1
NO DISPLAY,
but LED is ON
or LED is amber(yellow)
Checkpoint:
1. Click your mouse or type some word with your keyboard to wake up computer from saving status.
2. Check that your video cable is plugged in and does not have bent pins.
LED
Amber? or
Green?
Continued

If your PC in MS Win 98 and with lots of application software.

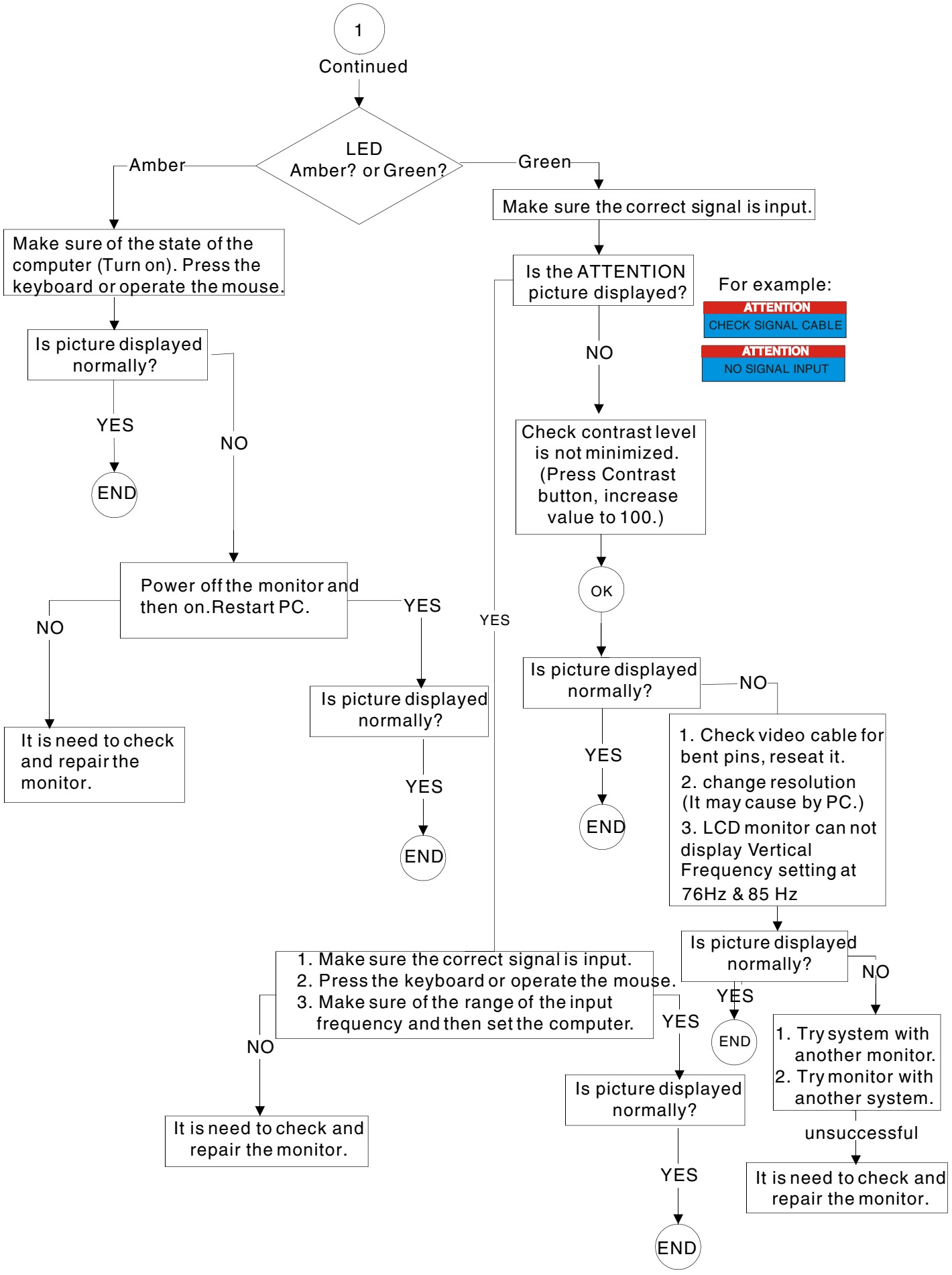
Do not set screen saver ->Wait -> at "14" minutes.

It will cause "no dispaly" problem as above mentioned.

Action : Restart PC and change timer setting of screen saver.



General Troubleshooting Guide (Continued)


1
Continued
LED
Amber? or Green?
Amber
Green
Make sure of the state of the computer (Turn on). Press the keyboard or operate the mouse.
Is picture displayed normally?
YES
END
NO
Power off the monitor and then on.Restart PC.
NO
It is need to check and repair the monitor.
YES
Is picture displayed normally?
YES
END
Make sure the correct signal is input.
Is the ATTENTION picture displayed?
For example:
ATTENTION
CHECK SIGNAL CABLE
ATTENTION
NO SIGNAL INPUT
NO
Check contrast level is not minimized. (Press Contrast button, increase value to 100.)
OK
Is picture displayed normally?
NO
YES
END
1. Check video cable for bent pins, reseat it.
2. change resolution (It may cause by PC.)
3. LCD monitor can not display Vertical Frequency setting at 76Hz & 85 Hz
Is picture displayed normally?
NO
YES
END
1. Try system with another monitor.
2. Try monitor with another system.
unsuccessful
It is need to check and repair the monitor.
YES
1. Make sure the correct signal is input.
2. Press the keyboard or operate the mouse.
3. Make sure of the range of the input frequency and then set the computer.
NO
It is need to check and repair the monitor.
YES
Is picture displayed normally?
YES
END

General Troubleshooting Guide (Continued)

2 **Monitor drivers (inf file)**

for Windows 95/98/2000/Me or later

Philips' monitors build in VESA DDC2B feature to support Plug & Play requirement for Windows 95/98/2000/Me . You can install the information file (.inf) in order to select your Philips monitor from "Monitor" dialog box in Windows 95/98/2000/Me to activate Plug & Play application. The installation procedure based on Windows '95 OEM Release 2 , 98 , Me and 2000 is specified as follows, (In case of connecting the monitor to the PC compliant with VESA standard with the designated signal cable, the PC reads display pixels, frequency, and color feature of this monitor to optimise the picture for the monitor automatically.)
DDC : Abbreviation for Display Data Channel

**** Windows NT 4.0 does not require driver (inf file) for monitors.****

For Windows 95

For Windows95 drivers , your monitor is listed under manufacture name "Philips Business Electronics Co.".

1. Start Windows '95
2. Click the 'Start' button, point to 'Setting', and then click 'Control Panel'.
3. Double Click the 'Display' Icon.
4. Choose the 'Settings' tab then click 'Advanced...'.
5. Choose 'Monitor' button, point to 'Change...' then click 'Have Disk...'.
6. Click 'Browse...' button then choose the appropriate drive F: (CD-ROM Drive) then click 'OK' button.
7. Click the 'OK' button then choose your monitor model and click the 'OK'.
8. Click 'Close' button.

For Windows 98

For Windows98 drivers, our monitors are listed under 2 manufactures name "Philips", and "Philips Consumer Electronics Co". Please select "Philips" when you would like to set up your monitor in Windows setting , if you can not find the right model name just as the label indication on the back of set. For those set that have been issued since the release of Win98 , drivers can be found in CDROM under the directory path of " \ pc\ driver \" or it may be downloaded at "http: \www.philips.com". Once you have installed the new driver , Windows will add a new manufacture name "Philips Business Electronics" in your system.

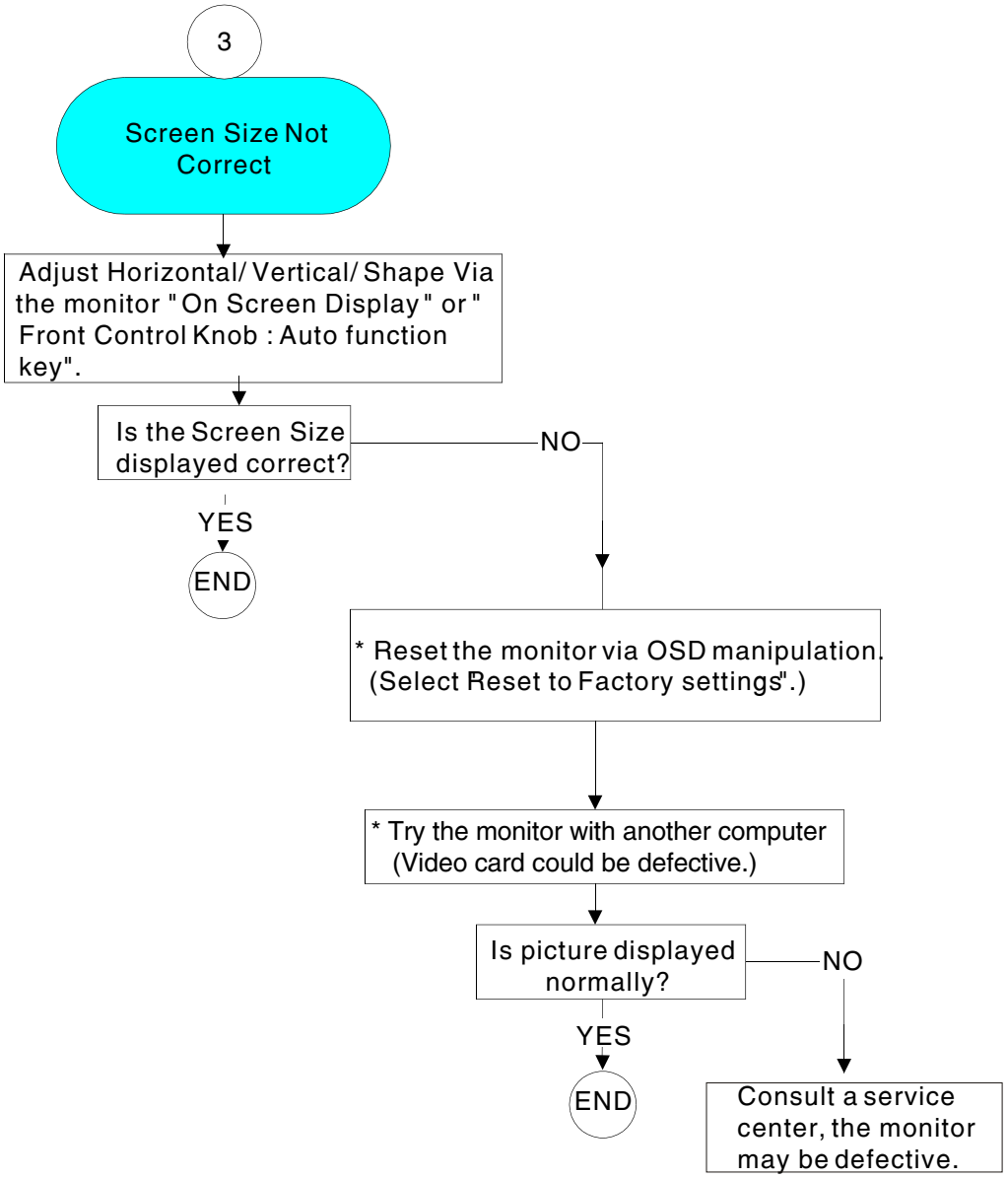
1. Start Windows 98
2. Click the 'Start' button, point to 'Setting', and then click 'Control Panel'.
3. Double Click the 'Display' Icon.
4. Choose the 'Settings' tab then click 'Advanced...'.
5. Choose 'Monitor' button, point to 'Change...' then click 'Next'
6. Choose "Display a list of all the drivers in a specific location, so you can elect the driver you want. " then click 'Next' and then click 'Have Disk...'.
7. Click 'Browse...' button then choose the appropriate drive F: (CD-ROM Drive) then click 'OK' button.
8. Click the 'OK' button then choose your monitor model and click the 'Next' button then click 'Next' button.
9. Click 'Finish' button then the 'Close' button.

For Windows Me

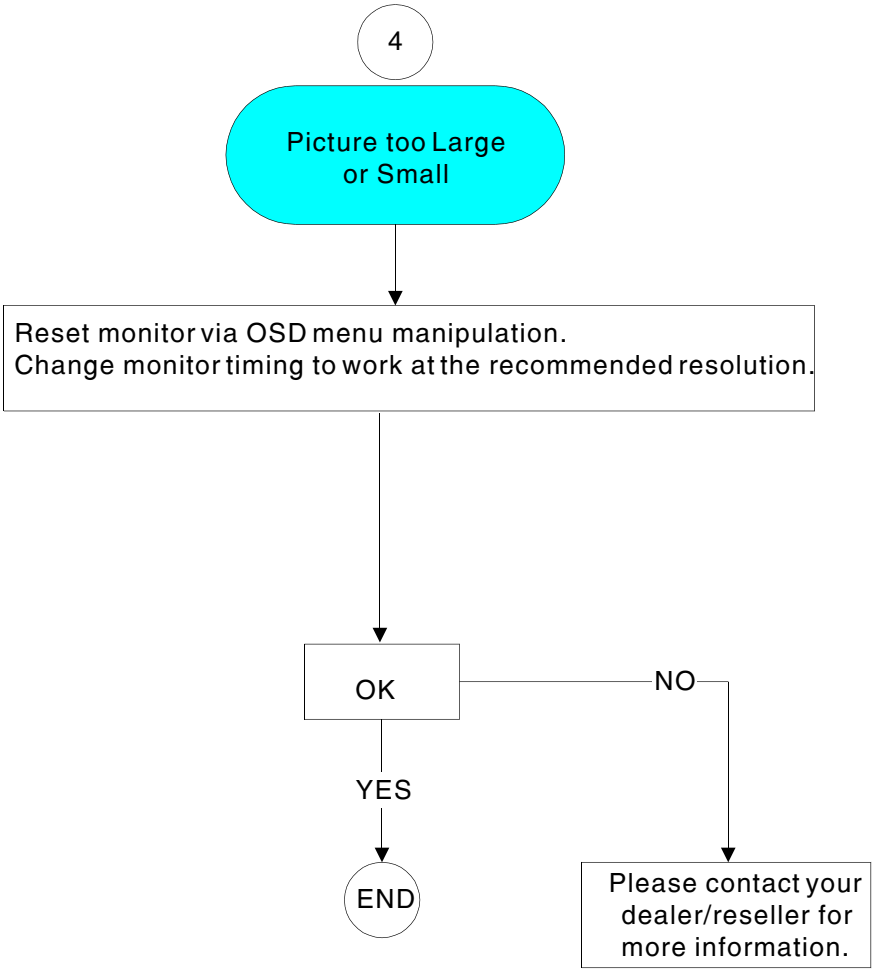
1. Start Windows Me
2. Click the 'Start' button, point to 'Setting', and then click 'Control Panel'.
3. Double Click the 'Display' Icon.
4. Choose the 'Settings' tab then click 'Advanced...'.
5. Choose 'Monitor' button, then click 'Change...' button.
6. Choose "Specify the location of the driver (Advanced)" and click the 'Next' button.
7. Choose "Display a list of all the drivers in a specific location, so you can select the driver you want." then click 'Next' and then click 'Have Disk...'.
8. Click 'Browse...' button then choose the appropriate drive F: (CD-ROM Drive) then click 'OK' button.
9. Click the 'OK' button then choose your monitor model and click the 'Next' button then click 'Next' button.
10. Click 'Finish' button then the 'Close' button.

For Windows 2000

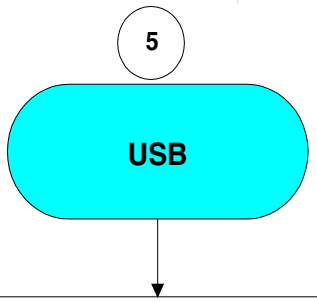
1. Start Windows 2000
2. Click the 'Start' button, point to 'Setting', and then click 'Control Panel'.
3. Double Click the 'Display' Icon.
4. Choose the 'Settings' tab then click 'Advanced...'.
5. Choose 'Monitor'
   - If the 'Properties' button is inactive, it means your monitor is properly configured. Please stop installation.
   - If the 'Properties' button is active. Click 'Properties' button. Please follow next step continually.
6. Click 'Driver' and then click on 'Update Driver...' then click on the 'Next' button.
7. Choose "Display a list of the known drivers for this device so that I can choose a specific driver" then click 'Next' and then click 'Have disk...'.
8. Click 'Browse...' button then choose the appropriate drive F: (CD-ROM Drive).
9. Click the 'Open' button, then click the 'OK' button.
10. Choose your monitor model and click the 'Next' button then click 'Next' button.
11. Click 'Finish' button then the 'Close' button. If you can see the "Digital Signature Not Found" window then click the 'Yes' button.


3
Screen Size Not Correct
Adjust Horizontal/ Vertical/ Shape Via the monitor "On Screen Display" or "Front Control Knob : Auto function key".
Is the Screen Size displayed correct?
NO
YES
END
* Reset the monitor via OSD manipulation. (Select "Reset to Factory settings".)
* Try the monitor with another computer (Video card could be defective.)
Is picture displayed normally?
NO
YES
END
Consult a service center, the monitor may be defective.

General Troubleshooting Guide (Continued)



General Troubleshooting Guide (Continued)



USB = Universal Serial Bus

USB is the simple way to connect peripherals to your computer. It can be used to attach a wide variety of devices like scanners, cameras, keyboards, mice, speakers,printer ..etc.

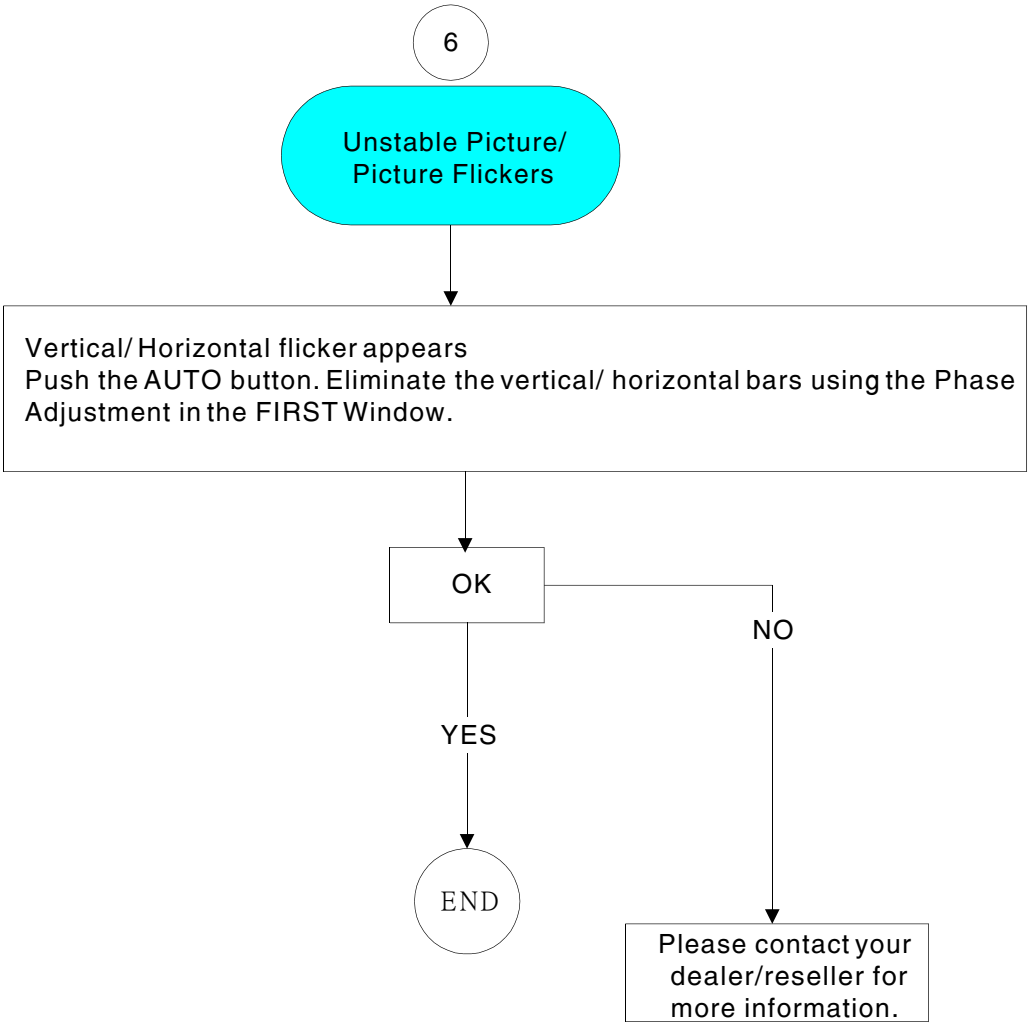
Useing USB devices (Operating Systems support USB) :
It depends on two things: hardware and software.
Hardware : You need a USB port in your computer. This can either be built in (most PC's build in 1999 and Apple's iMac) or from a plug in card. A number of venders sell PCI and CardBus USB adapters which can add USB capabilities to your older computer.
Software-wise for Wintel computers, you need either **Windows 98, Windows 95 OSR 2.1** (although Windows 98 has better USB support than Windows 95), **Windows 2000**. For Apple Macintosh computers you need **MacOS 8.1 or later**.

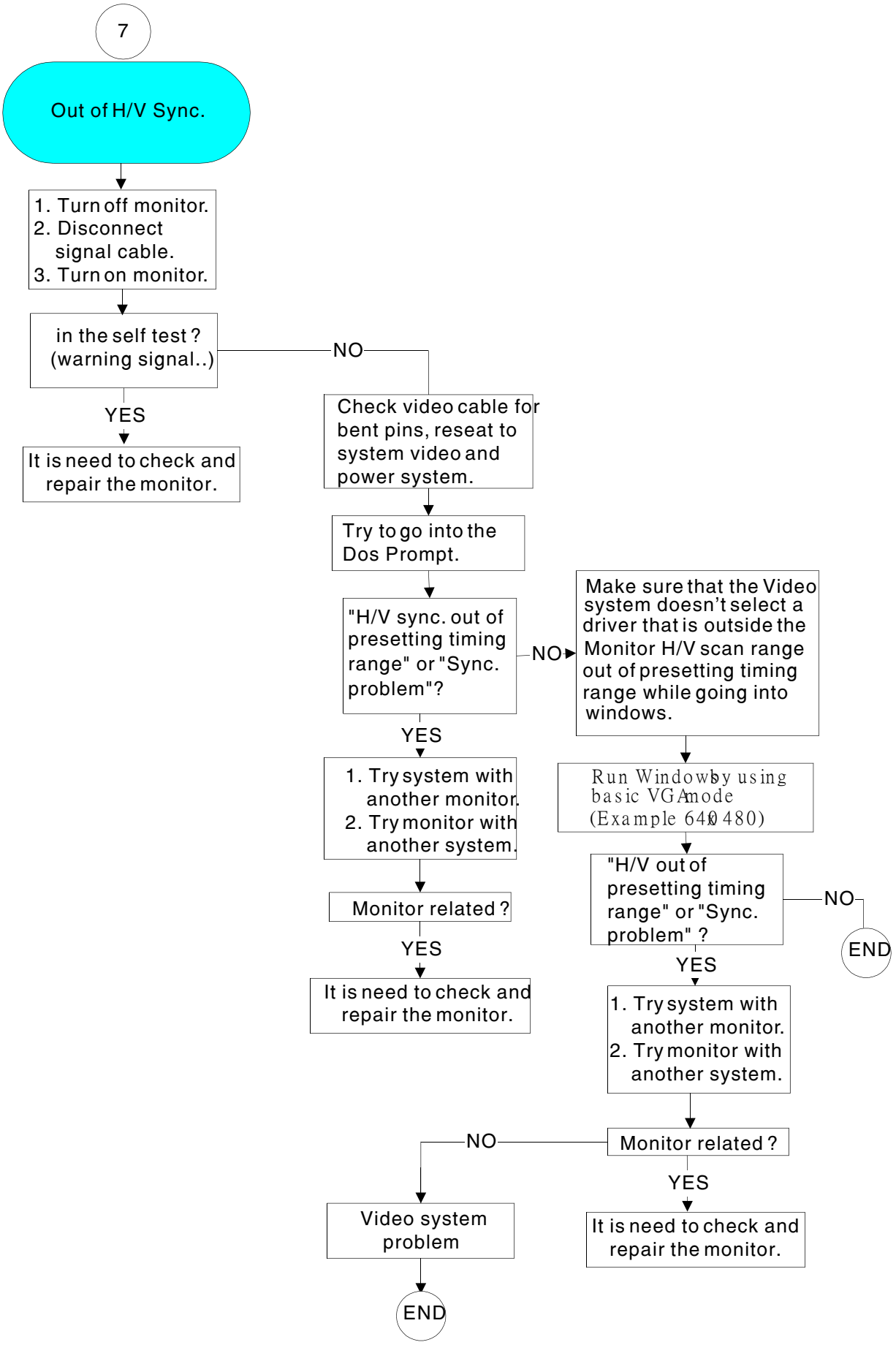
USB automatically determines resources (like driver software and bus bandwidth) required by peripherals.
USB makes necessary resources available without user intervention.
It is designed to meet Microsoft Plug and Play (PnP) specification, meaning users can install, and hot-swap devices without long installation procedures and reboots.
It allows 127 devices to run at the same time on the bus.

USB bus provides two types of data transfer speed -- 1.5Mbps and 12Mbps
and it can provide a maximum of 500mA of current to devices attached on the bus.
Universal means all peripherals share the same connector.
Serial simply defines devices can daisy chain together.
Universal Serial Bus 1.1, the de facto external connectivity standard for Mac and PC, has picked up the speed after its slow adoption by peripheral manufacturers, users and PC OEMs.

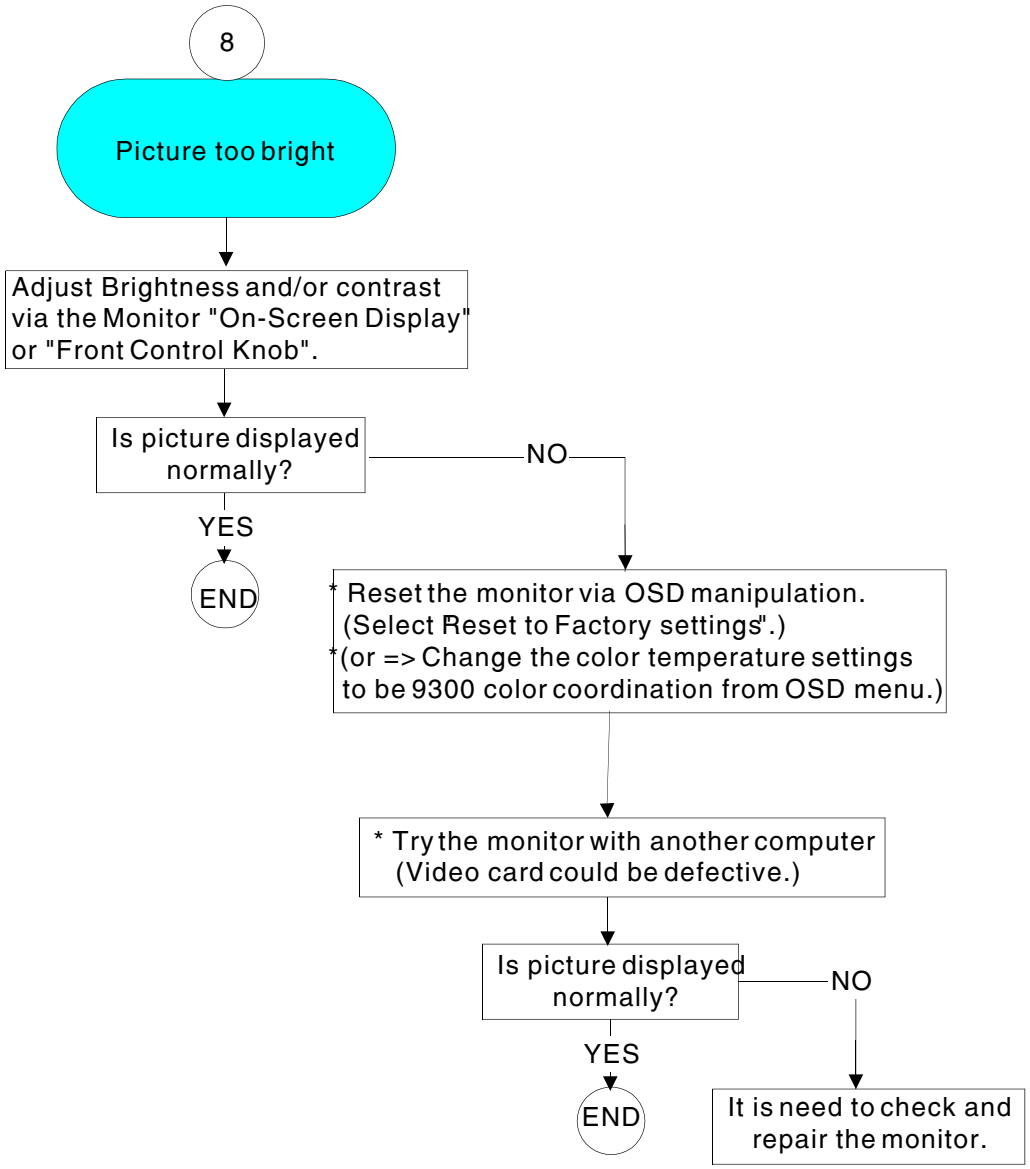
USB 2.0 :
Drafted by Compaq, Hewlett Packard, Intel, Lucent, Microsoft, NEC and Philips,
USB Specification version 2.0 will increase device data throughout up to 480Mbps, 40 times faster than USB 1.1 devices.

General Troubleshooting Guide (Continued)

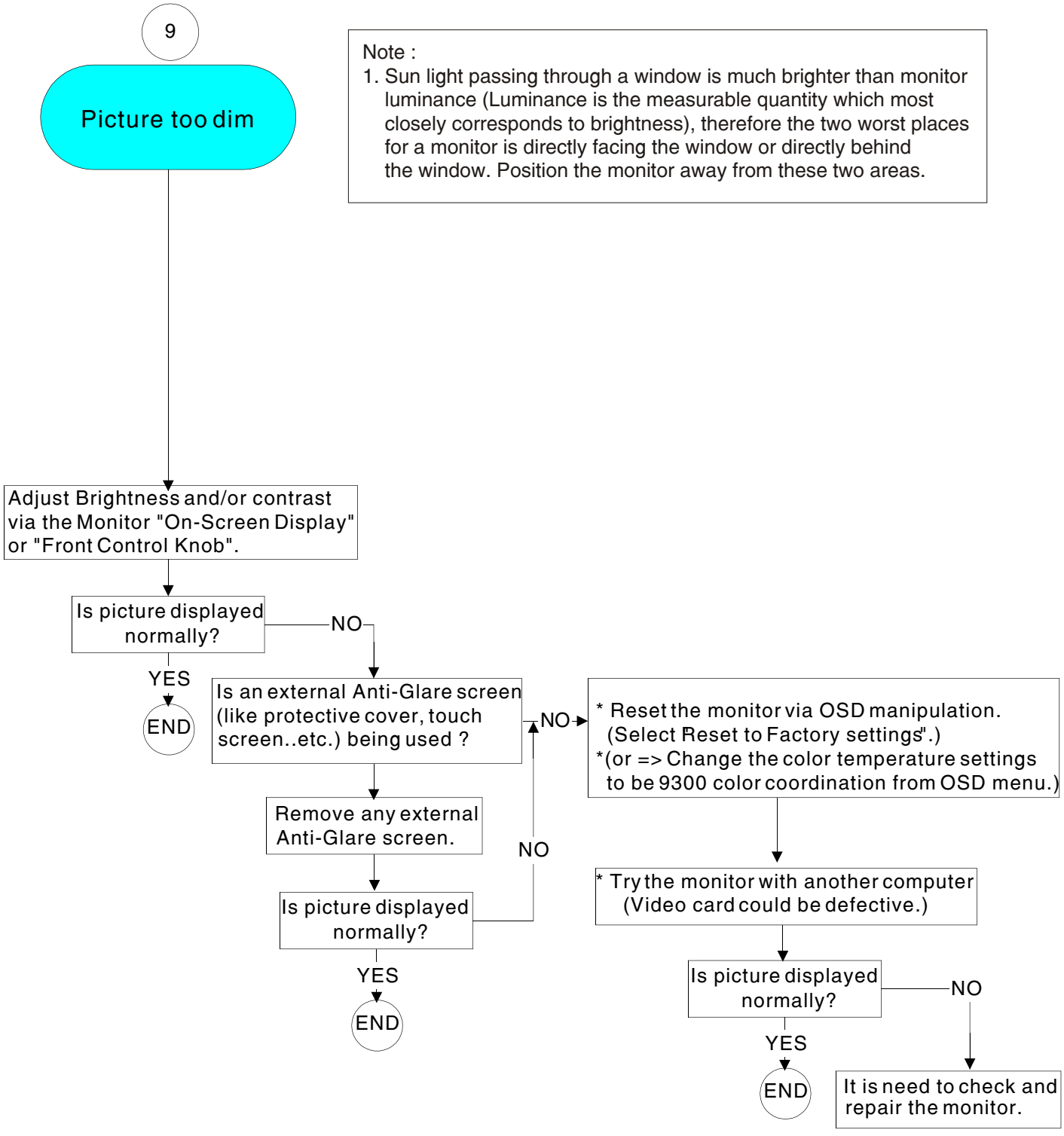



7
Out of H/V Sync.
1. Turn off monitor.
2. Disconnect signal cable.
3. Turn on monitor.
in the self test ? (warning signal..)
NO
YES
It is need to check and repair the monitor.
Check video cable for bent pins, reseat to system video and power system.
Try to go into the Dos Prompt.
"H/V sync. out of presetting timing range" or "Sync. problem"?
NO
Make sure that the Video system doesn't select a driver that is outside the Monitor H/V scan range out of presetting timing range while going into windows.
YES
1. Try system with another monitor.
2. Try monitor with another system.
Run Windows by using basic VGA mode (Example 640 480)
Monitor related ?
YES
It is need to check and repair the monitor.
"H/V out of presetting timing range" or "Sync. problem" ?
NO
END
YES
1. Try system with another monitor.
2. Try monitor with another system.
Monitor related ?
NO
YES
Video system problem
It is need to check and repair the monitor.
END

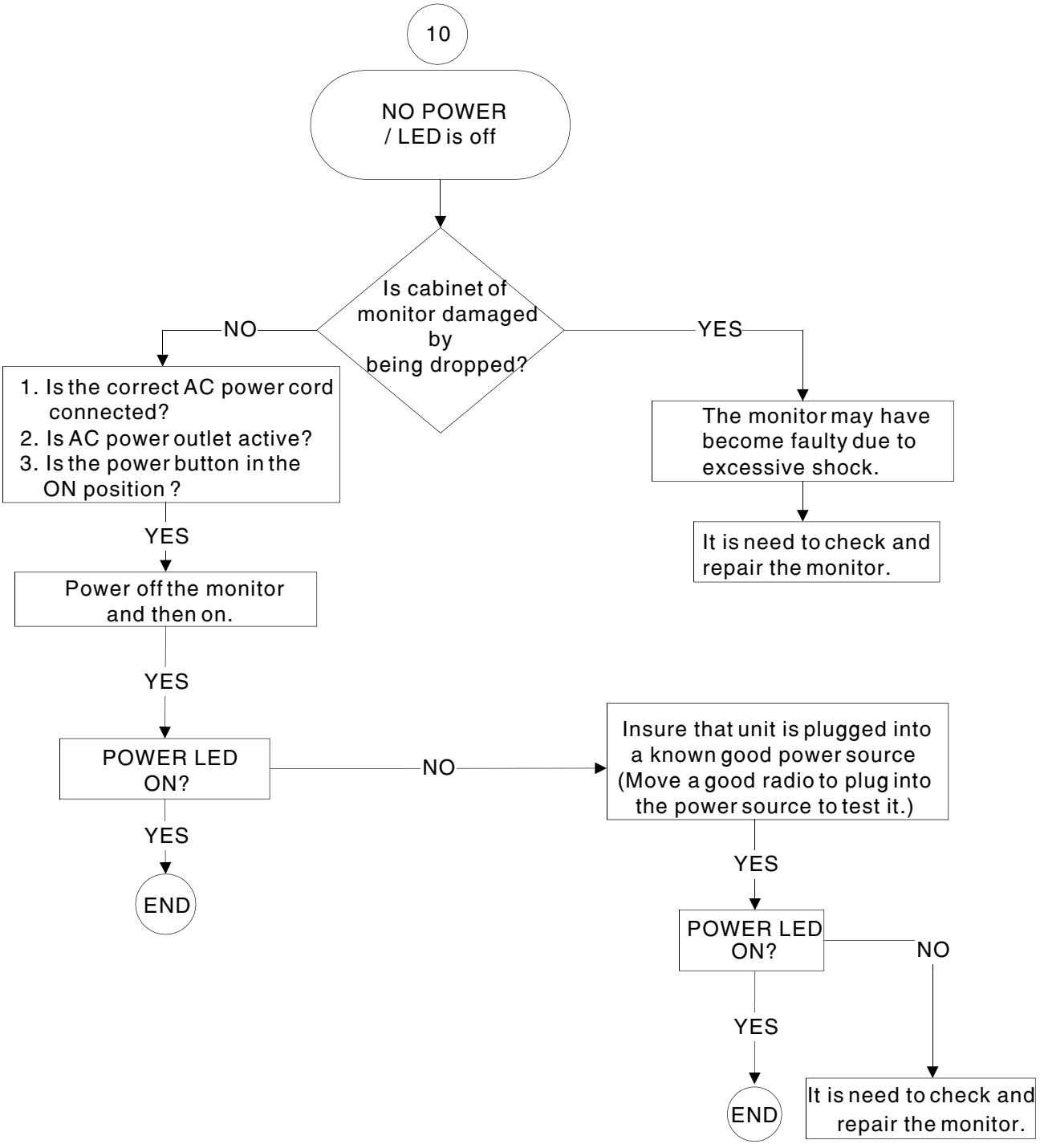
General Troubleshooting Guide (Continued)


8
Picture too bright
Adjust Brightness and/or contrast via the Monitor "On-Screen Display" or "Front Control Knob".
Is picture displayed normally?
NO
YES
END
* Reset the monitor via OSD manipulation. (Select "Reset to Factory settings".)
*(or => Change the color temperature settings to be 9300 color coordination from OSD menu.)
* Try the monitor with another computer (Video card could be defective.)
Is picture displayed normally?
NO
YES
END
It is need to check and repair the monitor.

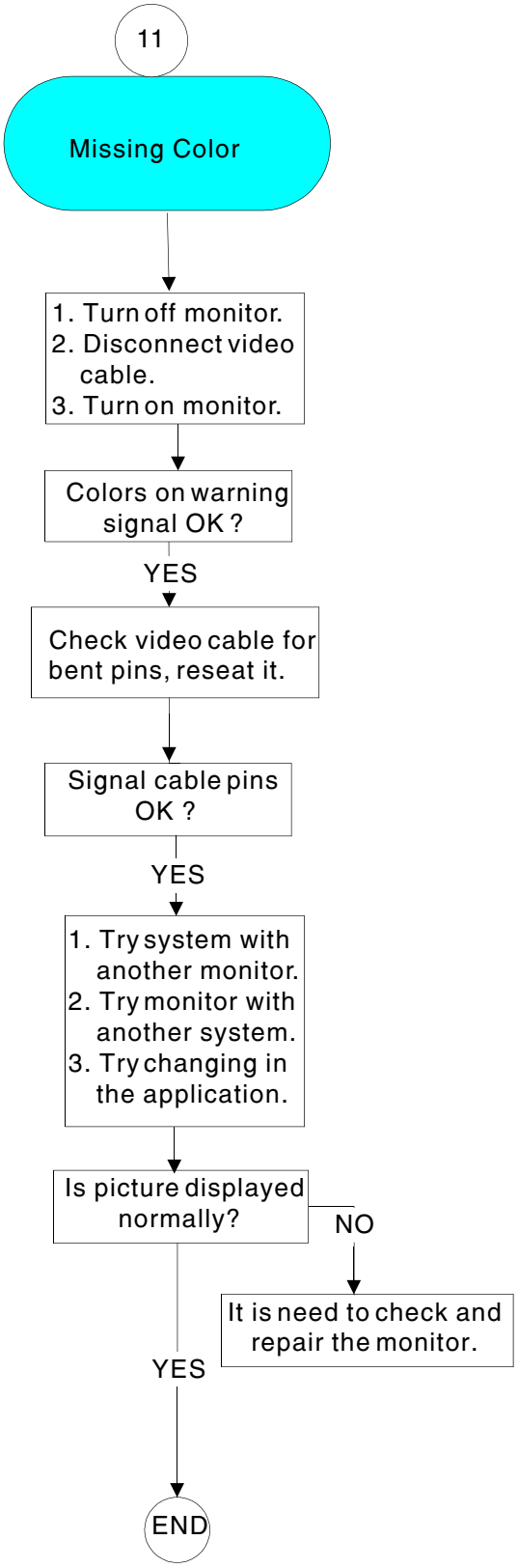
General Troubleshooting Guide (Continued)


9
Picture too dim
Note :
1. Sun light passing through a window is much brighter than monitor luminance (Luminance is the measurable quantity which most closely corresponds to brightness), therefore the two worst places for a monitor is directly facing the window or directly behind the window. Position the monitor away from these two areas.
Adjust Brightness and/or contrast via the Monitor "On-Screen Display" or "Front Control Knob".
Is picture displayed normally?
NO
YES
END
Is an external Anti-Glare screen (like protective cover, touch screen..etc.) being used ?
NO
Remove any external Anti-Glare screen.
Is picture displayed normally?
NO
YES
END
* Reset the monitor via OSD manipulation. (Select "Reset to Factory settings".)
*(or => Change the color temperature settings to be 9300 color coordination from OSD menu.)
* Try the monitor with another computer (Video card could be defective.)
Is picture displayed normally?
NO
YES
END
It is need to check and repair the monitor.

General Troubleshooting Guide (Continued)

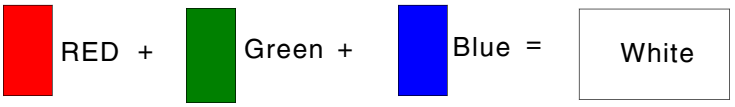

10
NO POWER
/ LED is off
Is cabinet of monitor damaged by being dropped?
NO
YES
1. Is the correct AC power cord connected?
2. Is AC power outlet active?
3. Is the power button in the ON position ?
YES
Power off the monitor and then on.
YES
POWER LED ON?
NO
YES
END
The monitor may have become faulty due to excessive shock.
It is need to check and repair the monitor.
Insure that unit is plugged into a known good power source (Move a good radio to plug into the power source to test it.)
YES
POWER LED ON?
NO
YES
END
It is need to check and repair the monitor.

General Troubleshooting Guide (Continued)

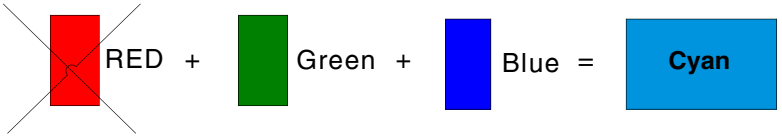


There are 2 easy ways to determine the Missing color problem.

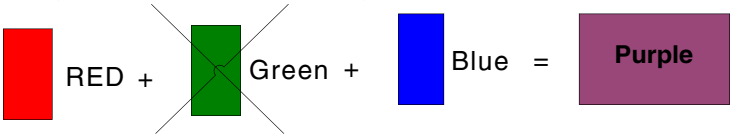
1. View an image that is supposed to be "White".
   If one of the colors (RGB) is not functioning.
   White can not be produced.
2. View an image that supposed to contain Red, Green and Blue.
   Color problems will be apparent when one or more of these colors can not be displayed.



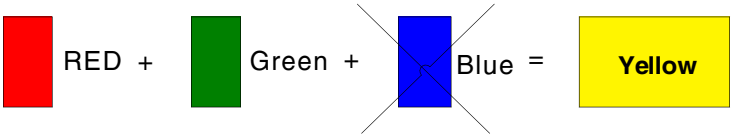
Cyan Color means that the red subpixel is missing.



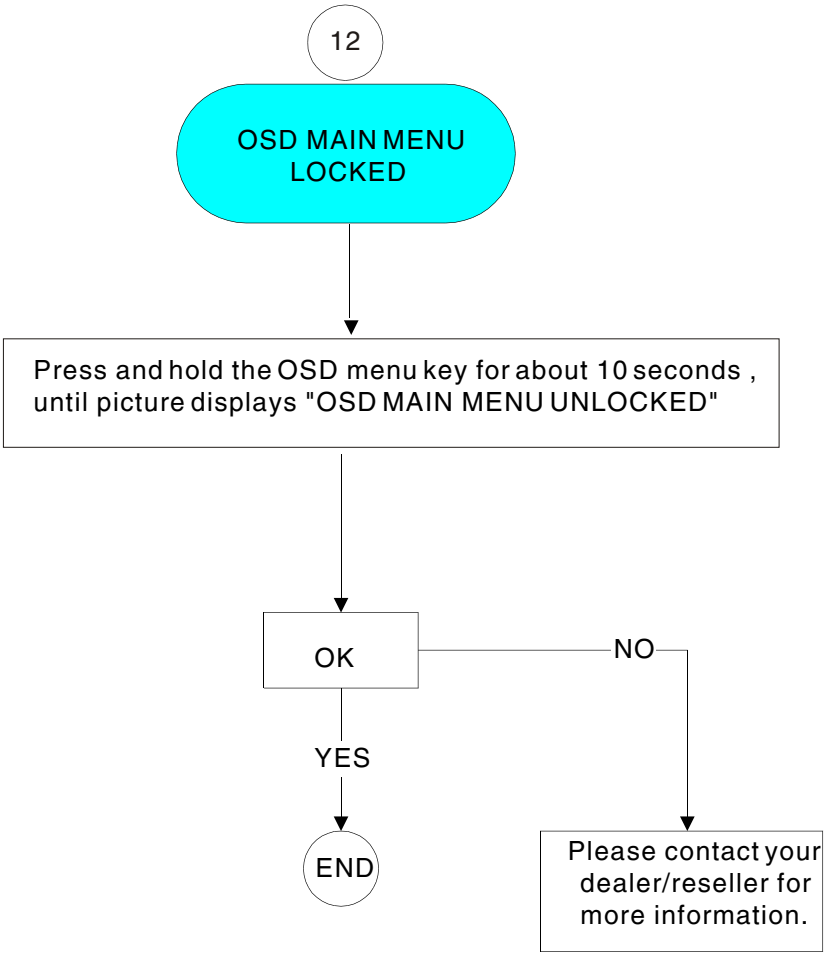
Magenta or Purple Color means that the green subpixel is missing.

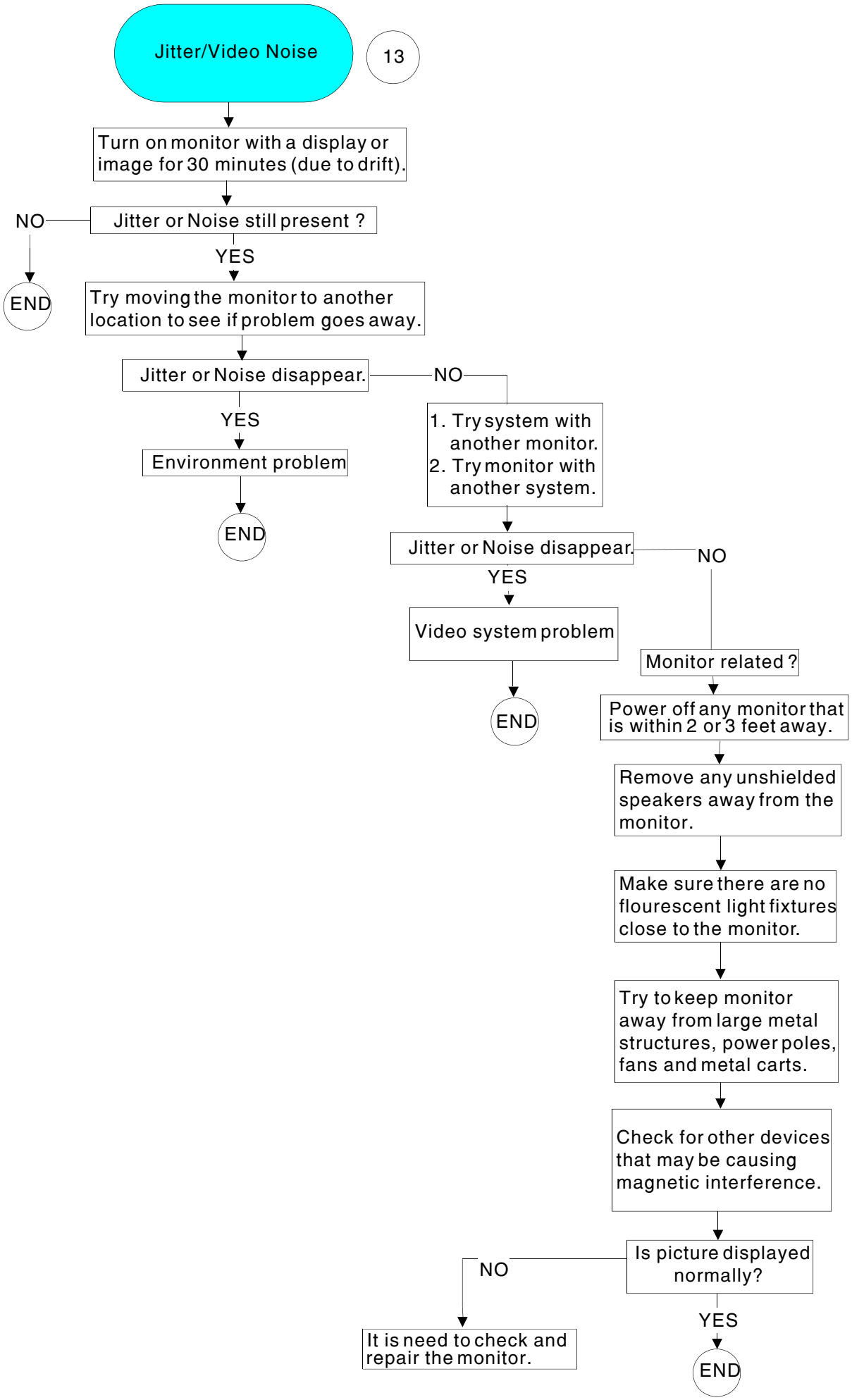


Yellow Color means that the blue subpixel is missing.

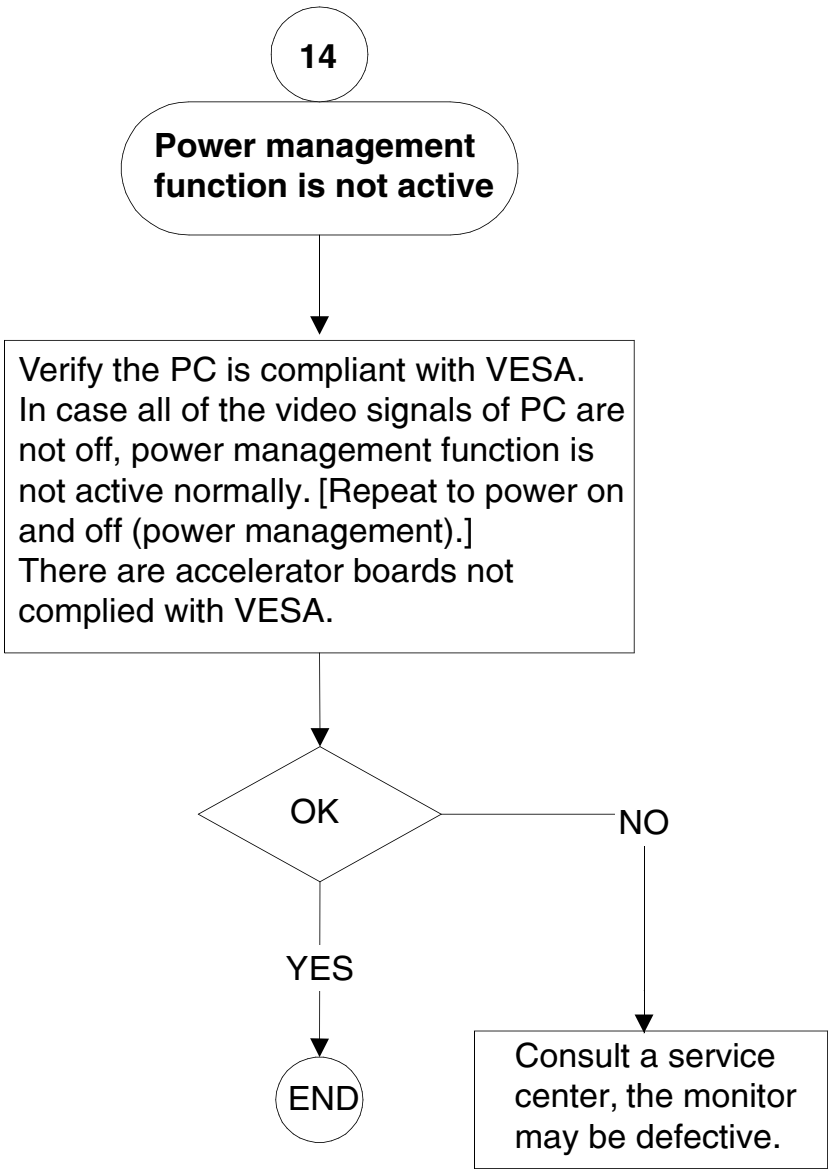


General Troubleshooting Guide (Continued)


12
OSD MAIN MENU LOCKED
Press and hold the OSD menu key for about 10 seconds , until picture displays "OSD MAIN MENU UNLOCKED"
OK
NO
YES
END
Please contact your dealer/reseller for more information.


Jitter/Video Noise
13
Turn on monitor with a display or image for 30 minutes (due to drift).
Jitter or Noise still present ?
NO
YES
END
Try moving the monitor to another location to see if problem goes away.
Jitter or Noise disappear.
NO
YES
Environment problem
END
1. Try system with another monitor.
2. Try monitor with another system.
Jitter or Noise disappear.
NO
YES
Video system problem
END
Monitor related ?
Power off any monitor that is within 2 or 3 feet away.
Remove any unshielded speakers away from the monitor.
Make sure there are no flourescent light fixtures close to the monitor.
Try to keep monitor away from large metal structures, power poles, fans and metal carts.
Check for other devices that may be causing magnetic interference.
Is picture displayed normally?
NO
YES
It is need to check and repair the monitor.
END

General Troubleshooting Guide (Continued)


14
Power management function is not active
Verify the PC is compliant with VESA.
In case all of the video signals of PC are not off, power management function is not active normally. [Repeat to power on and off (power management).]
There are accelerator boards not complied with VESA.
OK
NO
YES
END
Consult a service center, the monitor may be defective.

Important Safety Notice

Proper service and repair is important to the safe, reliable operation of all Philips Consumer Electronics Company** Equipment. The service procedures recommended by Philips and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Philips could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Philips has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Philips must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

** Hereafter throughout this manual, Philips Consumer Electronics Company will be referred to as Philips.

WARNING

Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line*
(where several critical components are grouped in one area) along with the safety symbol ⚠ on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Philips. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design.
Servicer assumes all liability.

* *Broken Line* ▬ ▪ ▬ ▪ ▬ ▪

FOR PRODUCTS CONTAINING LASER :

DANGER- Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION- The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

Take care during handling the LCD module with backlight unit

- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment person□s body are grounded through wrist band.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- Avoid contact with water as it may a short circuit within the module.
- If the surface of panel become dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

Technical Specifications

LCD Panel
Screen type : LG Active matrix - TFT LCD
Screen dimensions : 15 inches (diagnoal)
Preset display area
Horizontal : 304.1 mm
Vertical : 228.1 mm
Pixel pitch : 0.297 x 0.297 mm
Viewing angle (CR>= 10) : Vertical 90 degree,
Horizontal 120 degree typical,

Display Colors : 6 bits interface (16M colors)

SCANNING
Horizontal scan range : 30 kHz to 61 kHz (automatic)
Vertical scan range : 56 Hz to 76 Hz (automatic)
Optimal preset resolution : 1024 x 768 at 60 Hz
Highest preset resolution : 1024 x 768 at 75 Hz

Video
Video dot rate : 79MHz
input impedance
-Video : 75 ohms
-Sync : 5 K6Ohm
Input signal levels : 700m Vpp
Synchronization input signals : Separate horizontal and vertical / composite ;TTL level, positive or negative, Sync On Green
Input Frequency : XGA Hsync
48-61 KHz,Vsync 60-76Hz(N.I.)
SVGA Hsync
35-50 KHz,Vsync 56-75Hz(N.I.)
VGA Hsync
31-38 KHz,Vsync 60-76Hz(N.I.)
Video interface : Dual input:Both Analog(D-Sub) and DVI-I(Digital only) are available It can be switching via OSD selection

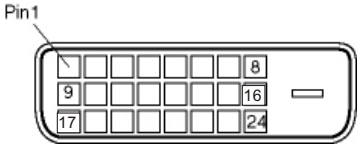
,Resolution and Preset Modes
Maximum : 1024 x 768 at 75Hz
Recommended : 1024 x 768 at 60Hz

Physical Characteristics
Dimensions
Height : 343 mm
Depth : 176 mm
Width : 358 mm
Weight (monitor only) : 4. 81kg

Tilt and swivel angle of pedestal : + - 175°
Height adjustment range : 50mm
Portrait display : 90° rotation counter colockwise
Forward / Backward : -5° / 25°
AC input voltage / frequency : 90 to 264 VAC / 50 or 60 Hz
Power consumption : 23 W (typ.)
Temperature
Operating : 5 C to 40 C (41 F to 104 F)
Humidity
Operating : 20% to 80%
System MTBF : 50K Hrs(CCFL 40Khrs)

Pin Assignment

DVI-D connector
(Digital Visual Interface - Digital)

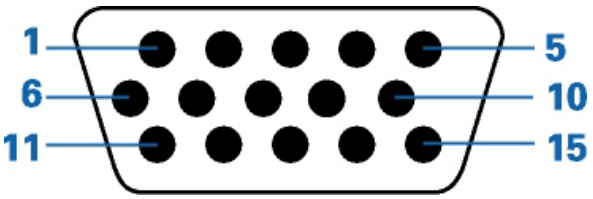


Pin Assignment

The digital only connector contains 24 signal contacts organized in three rows of eight contacts. Signal pin assignments are listed in the Table:

Pin No.	Signal Assignment	Pin No.	Signal Assignment	Pin No.	Signal Assignment
1	T.M.D. S. Data2 -	9	T.M.D.S. Data1 -	17	T.M.D.S. Data0 -
2	T.M.D.S. Data2+	10	T.M.D.S. Data1+	18	T.M.D.S. Data0+
3	T.M.D.S. Data2/4 Shield	11	T.M.D.S. Data1/3 Shield	19	T.M.D.S. Data0/5 Shield
4	No connect	12	No connect	20	No connect
5	No conn ect	13	No connect	21	No connect
6	DDC Clock	14	+5V Power	22	T.M.D.S. Clock Shield
7	DDC Data	15	Ground (for +5V)	23	T.M.D.S. Clock+
8	No connect	16	Hot Plug Detect	24	T.M.D.S. Clock -

2. The 15-pin D-sub connector (male) of the signal cable



Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	DDC+5V
2	Green video input	10	Logic ground
3	Blue video input	11	Identical output connected to pin 10
4	Identical output connected to pin 10	12	Serial data line (SDA)
5	Cable detect	13	H. Sync / H+V
6	Red video ground	14	V. Sync
7	Green video ground	15	Data clock line (SCL)
8	Blue video ground		

Technical Data

Automatic Power Saving

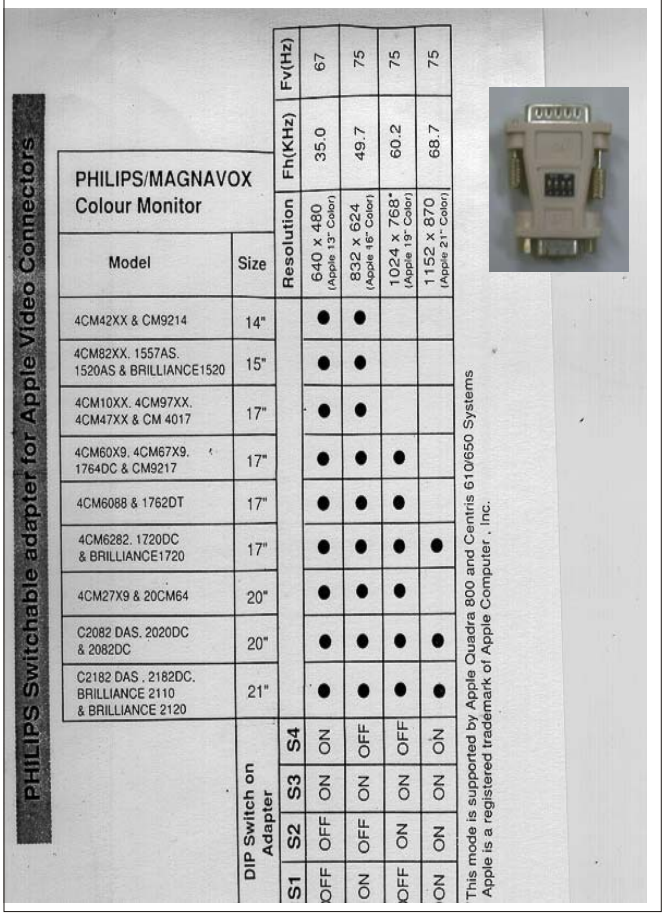
If you have VESA's DPMS compliance display card or software installed in your PC, the monitor can automatically reduce power consumption when power saving function active. And if an input from keyboard, mouse or other input devices is detected, the monitor will automatically "wake up". The following table shows the power consumption and signaling of this automatic power saving feature :

Power Management Definition						
VESA's mode	VIDEO	H-SYNC	V-SYNC	POWER USED	POWER SAVING(%)	LED COLOR
ON	Active	Yes	Yes	< 23 W	0 %	Green
Stand-by	Blanked	No	Yes	< 3 W	83.3 %	Amber
Suspend	Blanked	Yes	No	< 3 W	83.3 %	Amber
OFF	Blanked	No	No	< 3 W	90 %	Amber

This monitor is Environmental Protection Agency (EPA) Energy Star compliant and TCO'99 power management compatible.
*Zero power consumption in OFF mode can only be achieved by disconnecting the mains cable from the monitor.

ENERGY STAR® is a U.S. registered mark. AS AN ENERGY STAR PARTNER, PHILIPS HAS DETERMINED THAT THIS PRODUCT MEETS THE ENERGY STAR GUIDELINES FOR ENERGY EFFICIENCY.

Philips Switchable adapter for Apple Video Connectors
MAC Adaptor (For Reference Only)


PHILIPS Switchable adapter for Apple Video Connectors
PHILIPS/MAGNAVOX Colour Monitor
Model
Size
Resolution
Fh(KHz)
Fv(Hz)
640 x 480 (Apple 13" Color)
832 x 624 (Apple 16" Color)
1024 x 768* (Apple 19" Color)
1152 x 870 (Apple 21" Color)
4CM42XX & CM9214 14"
4CM82XX. 1557AS. 1520AS & BRILLIANCE1520 15"
4CM10XX. 4CM97XX. 4CM47XX & CM 4017 17"
4CM60X9. 4CM67X9. 1764DC & CM9217 17"
4CM6088 & 1762DT 17"
4CM6282. 1720DC & BRILLIANCE1720 17"
4CM27X9 & 20CM64 20"
C2082 DAS. 2020DC & 2082DC 20"
C2182 DAS . 2182DC. BRILLIANCE 2110 & BRILLIANCE 2120 21"
35.0 49.7 60.2 68.7
67 75 75 75
DIP Switch on Adapter
S1 S2 S3 S4
OFF OFF ON ON
ON OFF ON OFF
OFF ON ON OFF
ON ON ON ON
This mode is supported by Apple Quadra 800 and Centris 610/650 Systems
Apple is a registered trademark of Apple Computer , Inc.

Data Storage

Factory preset mode:

This monitor has 14 factory-preset modes as indicated in the following table :

Mode	Resolution	H. freq. / V. freq	Standard
1.	640 x 350	31.469Khz/70.087Hz	VGA
2.	720 x 400	31.469Khz/70.087Hz	VGA
3.	640 x 480	31.469Khz/59.940Hz	VGA
4.	640 x 480	35.000Khz/66.667Hz	Macintosh
5.	640 x 480	37.861Khz/72.809Hz	VESA
6.	640 x 480	37.500Khz/75.000Hz	VESA
7.	800 x 600	35.156Khz/56.250Hz	VESA
8.	800 x 600	37.879Khz/60.317Hz	VESA
9.	800 x 600	48.077Khz/72.188Hz	VESA
10.	800 x 600	46.875Khz/75.000Hz	VESA
11.	832 x 624	49.700Khz/75.000Hz	Macintosh
12.	1024 x 768	48.363Khz/60.004Hz	VESA
13.	1024 x 768	56.476Khz/70.069Hz	VESA
14.	1024 x 768	60.023Khz/75.029Hz	VESA

Meanwhile, it also reverse 14 sets data space available for user storage new timings data.

Connection to PC

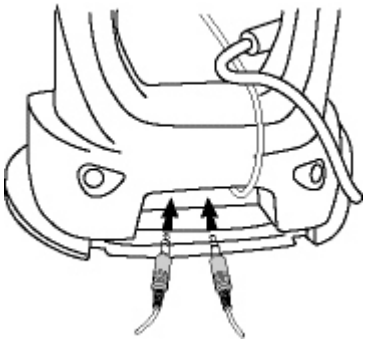
Please follow the steps to connect your LCD Monitor to PC.
1. Lay down the set with panel on bottom side and lift the base as the Attached picture

2. Put to both thumbs on the top of base, and other fingers on upper area of the recess on the back cover. As attached picture.

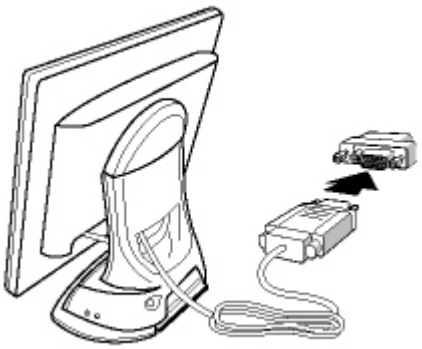
3.Use thumbs to push the base until the base moved to position where the wings of hingle could be take out from back cover as attached picture.

4.Thread power cable through the hole at the bottom of the stand, and plug onto monitor firmly.

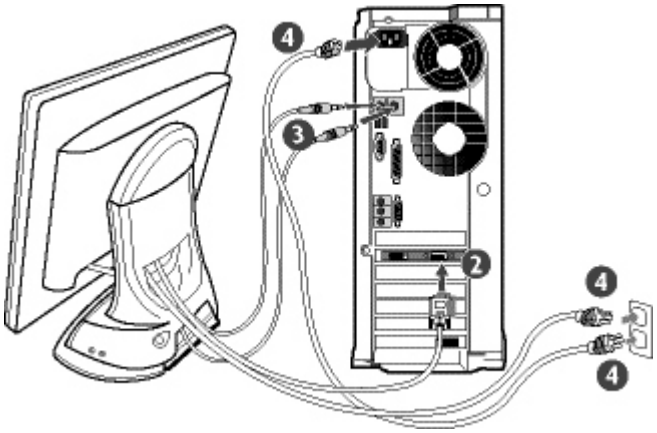
5.Connect microphone and audio cables onto the rear side of base if any Double check all cables connection closely. Make sure they are all connected well.



6. If you use an Apple Macintosh, you need to connect the special Mac adapter to one end of the monitor signal cable.



7.Pull back up the monitor body.



8.Connect to PC

(1) Turn off your computer and unplug its power cable.
(2) Connect the monitor signal cable to the video connector on the back of your computer.
(3) Plug the power cord of your computer and your monitor into a nearby outlet.
(4) Turn on your computer and monitor. If the monitor displays an image, installation is complete.

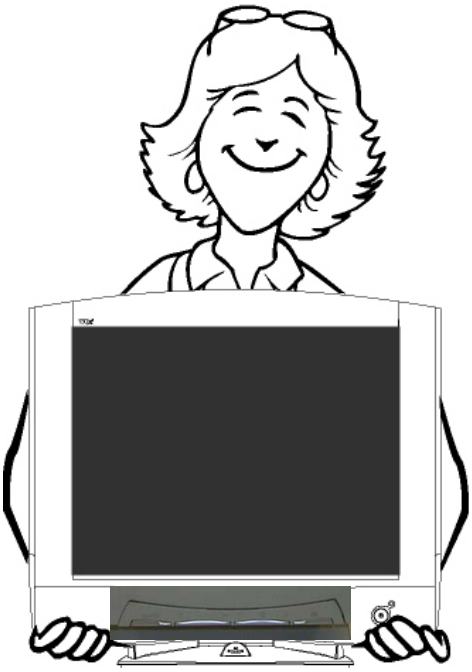
Installation

Installation Locations

Avoid Heat and Extreme Cold

1. Do not store or use the LCD monitor in locations exposed to heat, direct sunlight, or extreme cold.
2. Avoid moving the LCD monitor between locations with large temperature differences. Choose a site falling within the following temperature and humidity ranges.
   Temperature: 5-35°C 41-95°F
   Humidity: 20-80% RH
3. Do not subject the LCD monitor to severe vibration or high impact conditions. Do not place the LCD monitor inside a car trunk.
4. Take care not to mishandle this product by either knocking or dropping during operation or transportation.
5. Do not store or use the LCD monitor in locations exposed to high humidity or a dusty environment. Also do not allow water or other liquids to spill on or into the LCD monitor

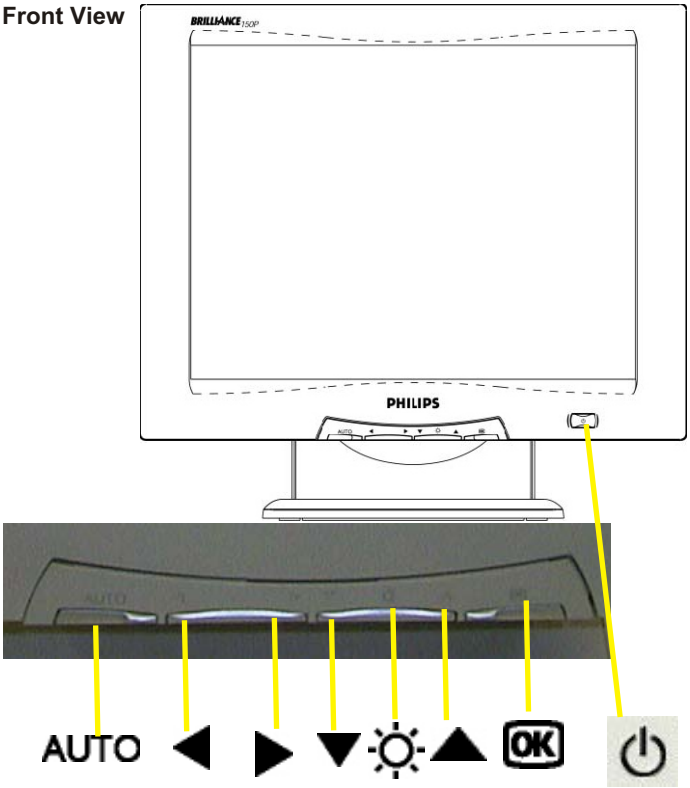
Correct handling of the monitor



1. When handling the monitor, grip the bottom firmly with both hands and ensure that the front panel faces outward before lifting. Please refer to the diagram on the right.
2. Handling the monitor with care prevents scratching and damage. If the monitor becomes damaged, immediately disconnect the power from the unit and have it checked by a qualified service person before using it again.
3. To prevent fire or electrical shock, do not drop the monitor.
4. When moving the monitor, be sure to unplug all power cords in order to avoid injury or damage to the equipment.

Description of Controls

Front View



UP and DOWN buttons are used when adjusting the OSD of your monitor

LEFT and RIGHT buttons, like the UP and DOWN buttons, are also used in adjusting the OSD of your monitor.

BRIGHTNESS hotkey. When the UP and DOWN arrow buttons are pressed, the adjustment controls for the BRIGHTNESS will show up.

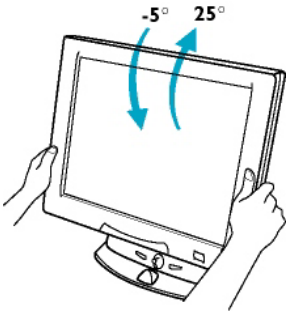
OK button which when pressed will take you to the OSD controls.

POWER button switches your monitor on.

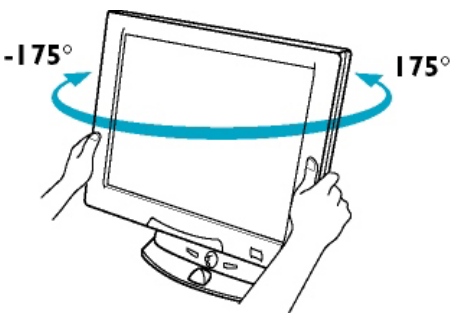
AUTO Automatically adjust the horizontal position, vertical position, phase and clock setting.

Physical Function

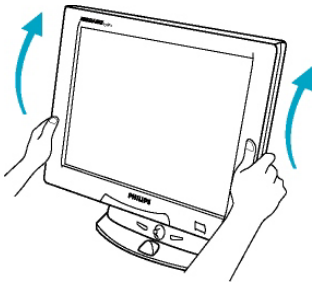
1) Tilt



2) Swivel



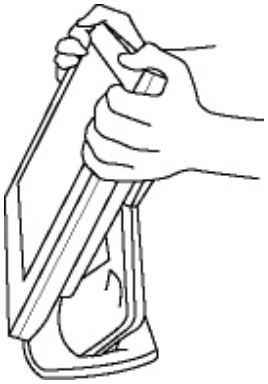
3) Height adjustment



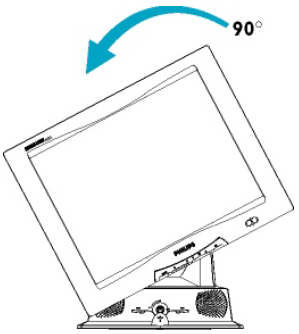
4) Pivot

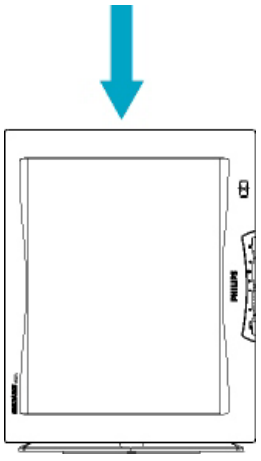
Turn monitor from landscape view to portrait view vot

4.1) Tilt the monitor body at an angle



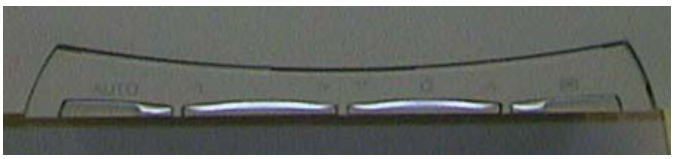
4.2) Rotate the monitor body 90 degrees counter clockwise





Advanced control of OSD

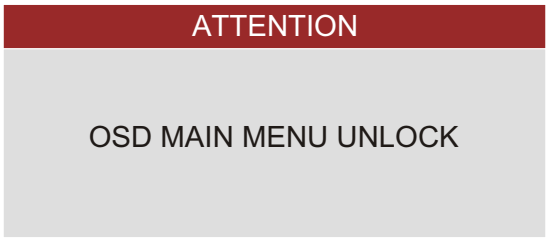
Front control panel



To Lock/Unlock OSD function

The OSD function can be locked by pressing button for more than 10 seconds, the screen shows following windows for 3 seconds. Everytime when you press or button, this message appears on the screen automatically. The & (brightness), & (mute) hotkey are still functional for brightness and mute expectively while OSD locked

Locked OSD function can be released by pressing button for more than 10 seconds. While press button for OSD unlocked purpose, the screen will keep showing "OSD MAIN MENU LOCKED" until OSD function unlocked and screen automatically shows following window for 3 seconds.



Switch ON/OFF attention signals

All attention signals can be switched off by keep pressing button for more than 10 seconds if there is no video signal supplied.

Recover attention signals by pressing button for more than 10 seconds without video signal input.

Access Service Mode

Operating monitor with no signals (power saving mode), keep pressing button for more than 10 seconds. Following information will appear on the screen. Leave service mode by either re-feed video signal or simply turn off and on the power of monitor.

Access Factory Mode

To hold and buttons then power on the monitor. Press to bring up OSD menu for confirmation as below:

Access Aging Mode

In the factory mode, once video signal removed, a full white pattern will be display on the screen as Fig.1 in stead of power saving mode. In other words, the power saving function will be disable in the factory mode.

Fig.1

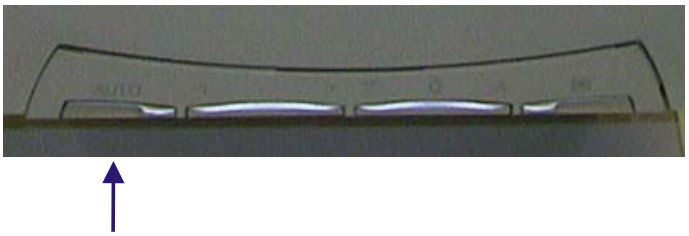
Leave factory mode by simply power off the monitor.

CLOCK & PHASE Adjustments

Due to the different quality of video signal generated from graphics cards. It is necessary to adjust CLOCK and PHASE functions for the optimal video display of LCD monitor. Following steps will guide you to make correct adjustment of CLOCK and PHASE.

However, CLOCK and PHASE functions are only available while analog video signal is supplied. Operating unit under digital signal state, the video clock information can be obtained from graphics cards directly. Therefor, it is unnecessary to adjust these functions

Auto adjustment hotkey



The 150P has build-in a auto adjustment hotkey on the front panel, you may obtained a optimal video display by simply press the AUTO button and save the settings. CLOCK, PHASE, Vertical position, and Horizontal position are adjusted automatically.

Manual adjustment

If the quality of display still poor or flicker, you may also improve it by manual adjust CLOCK and PHASE functions to eliminate the flicker.

Step 1 : Click on the Start button (Win95, Win98 or Win NT) and choose " Shut Down...". as shown in Fig.1

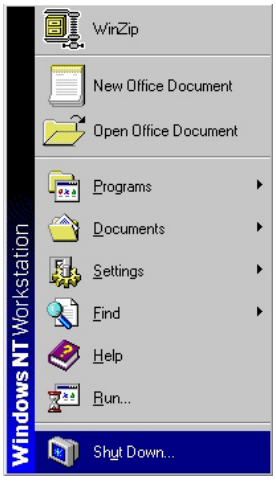


Fig.1

Step 2 : The menu of " Shut Down Windows " is as shown in Fig. 2

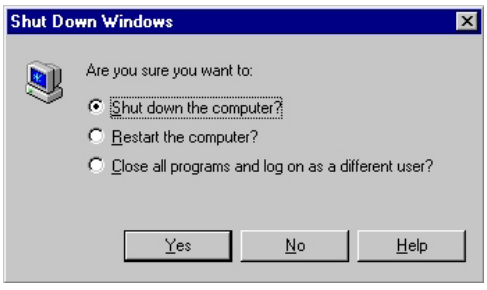
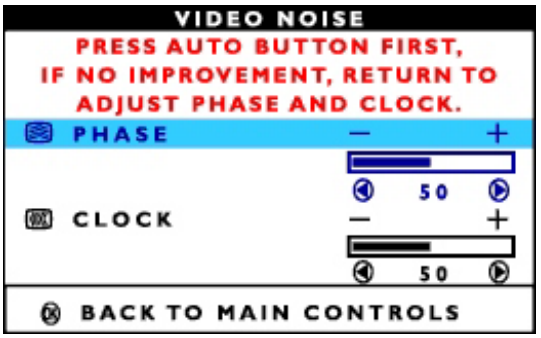


Fig. 2

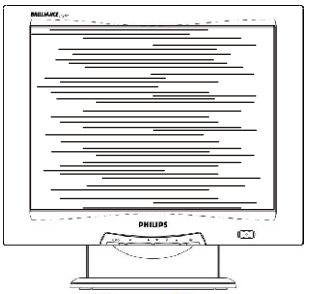
Step 3 : Remaining Shut Down Window on the screen , follow The CLOCK and PHASE adjustment instructions for the optimal video display.

Step 4 : Press the OK button to bring up OSD menu.

Step 5 : Select VIDEO NOISE by press OK button.
Step 6 : Press ▼ for bring up its submenu.

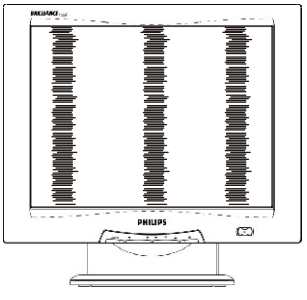


Step 7 : Press ◀ or ▶ to adjust PHASE. The picture will be jitter as following figure, adjust PHASE and check the picture, stop at the point that without any vertical jitter bar remaining on the screen.



PHASE phenomenon

Step 8 : Press ◀ or ▶ to adjust CLOCK. The picture will be jitter as following figure, adjust CLOCK to fine-ture the video until optimal display is obtained.



CLOCK Phenomenon

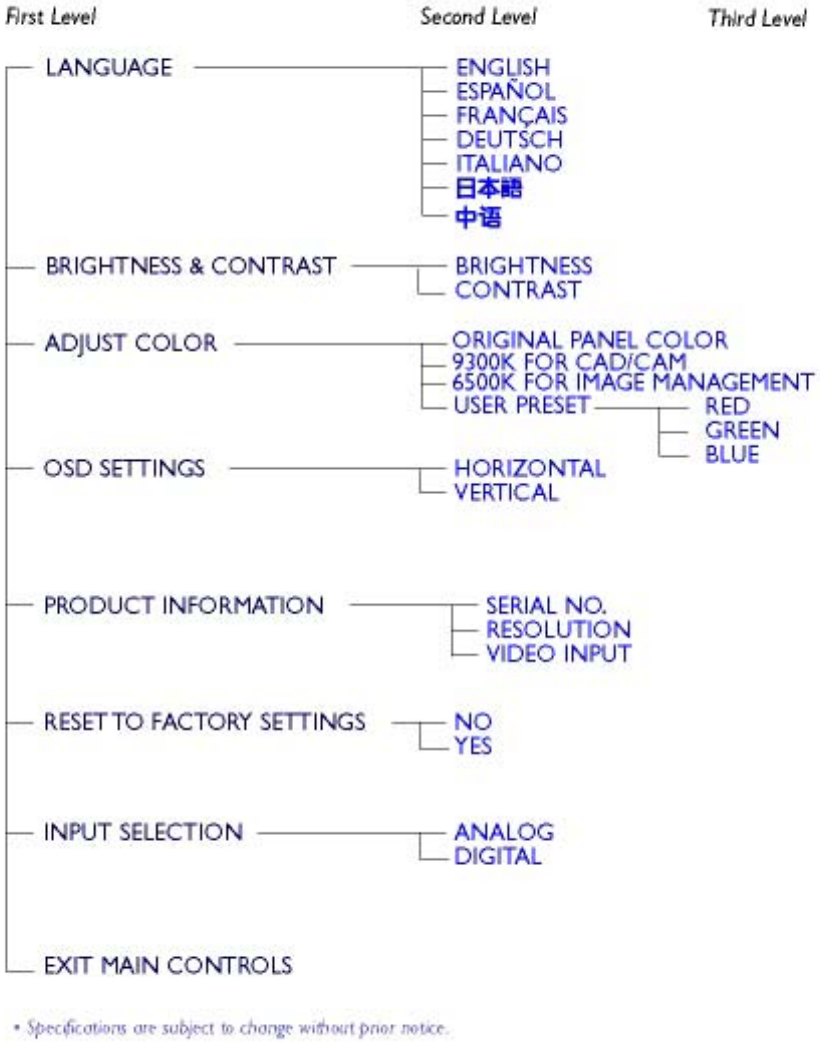
Step 9 : Quit OSD menu by press OK button to save the settings.

OSD Control Structure for Analog

The OSD Tree for analog video signal

Below is an overall view of the structure of the On-Screen Display. You can use this as reference when you want to later on work your way around the different adjustments.

First Level **Second Level**



• *Specifications are subject to change without prior notice.*

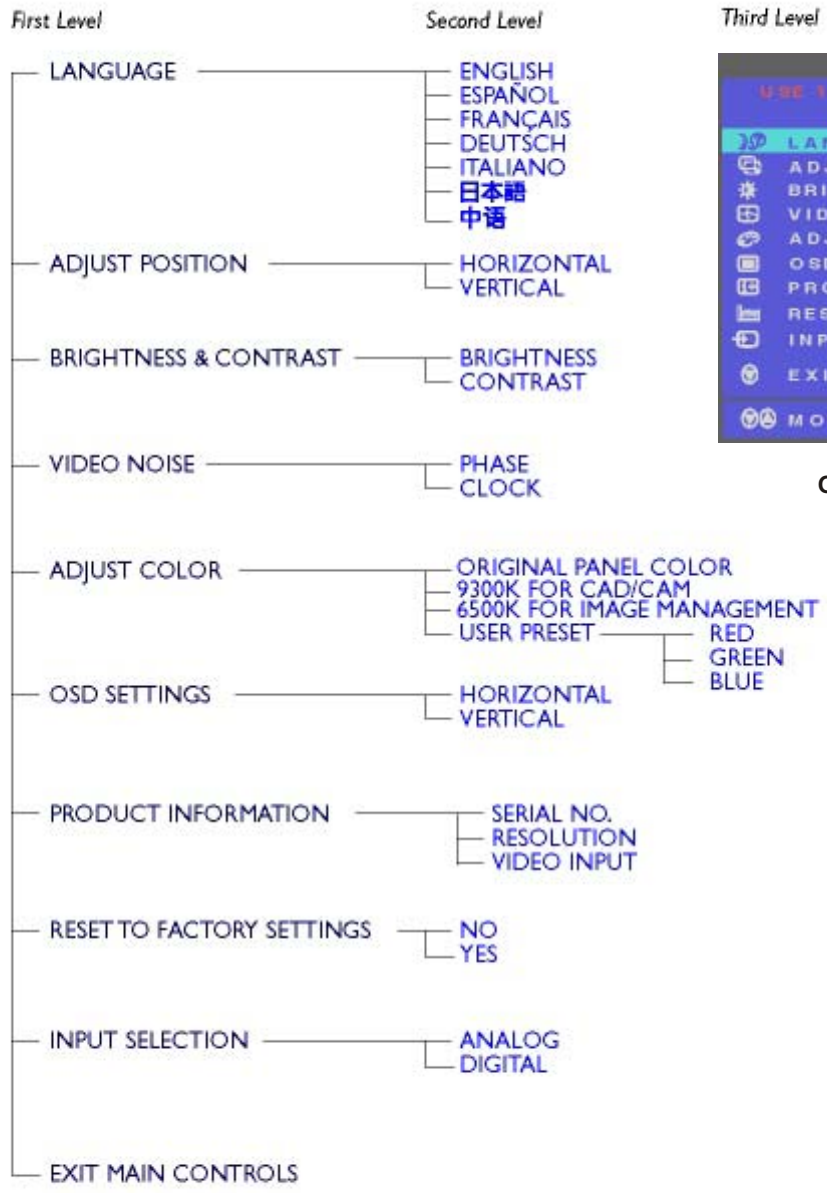
OSD Menu (Analog)

OSD Control Structure for Digital

The OSD Tree for digital video signal (DVI-D or DVI-I)

This OSD structure is different from analog menu, there are three functions will be disable on digital OSD menu: Contrast, Video Noise, and Adjust Color.

First Level **Second Level**



OSD Menu (Digital)

• *Specifications are subject to change without prior notice.*